



ARMED FORCES INSTITUTE OF PATHOLOGY

ANNUAL REPORT 2008

**The Armed Forces Institute of Pathology
supports the
United States Department of Defense
and serves the American people
by providing medical expertise
in diagnostic
consultation, education, and research
to enhance the health and well being of
the nation.**



2008 ANNUAL REPORT

Armed Forces Institute of Pathology
Washington, DC 20306-6000

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DIRECTOR'S MESSAGE

A Year of Challenges and Perseverance

In the many years I have served at the Armed Forces Institute of Pathology (AFIP) I can honestly say that 2008 was one of the most challenging I have ever experienced, both personally and from an institutional perspective.

The Base Realignment and Closure law, which requires that the AFIP be disestablished in 2011, and subsequent legislation requiring standing up of a Joint Pathology Center (JPC) before the BRAC process could move forward, meant that a cloud of uncertainty and confusion hung over the Institute. And it threatened to instill a sense of institutional paralysis.

All of us – regardless of when we began our work with the AFIP – instantly became rich with an inheritance bequeathed to us through decades upon decades of splendid service by others who had helped make the Institute a world leader in pathology consultation, education and research. And it's difficult to see such an inheritance threatened, never mind preparing ourselves to let it go.

Despite all these challenges, I am proud to say that the staff of the AFIP was able to rise above the uncertainty and confusion to make 2008 a year of continued forward progress. By remaining acutely focused on dedication to excellence in customer service, we avoided the danger of institutional paralysis and embraced the simple rewards of hard work and work done well for the betterment of others.


This is evident in the many areas the AFIP was recognized for excellence. The Institute itself received renewed accreditation by the Commission on Laboratory Accreditation of the College of American Pathologists (CAP). In the Institute's Department of Environmental and Infectious Disease Sciences a Registry on Embedded Metal Fragments was established – a first step in creating a mechanism for tracking DoD personnel bearing potentially hazardous embedded metal fragments. The importance of this project and its forward-leaning approach was touted both nationally and internationally by CNN and French Television. Additionally, the Institute's Laboratory Animal Care Program received a continued Full Accreditation award from the Association for Assessment and Accreditation of Laboratory Animal Care International. The Council applauded AFIP for its detailed medical and surgical records and the excellent training provided to all key personnel. Within the Armed Forces Medical Examiner System, the Chief of the Mortality Surveillance Division received the prestigious Berry Prize in Federal Healthcare – the first time an AFIP staff member received this coveted award. And the DNA Identification Laboratory received a new, five-year accreditation from The American Society of Crime Laboratory Directors—Laboratory Accreditation Board (ASCLD-LAB). The ASCLD-LAB is the gold standard of accreditation for forensic laboratories around the world seeking the highest measure of quality laboratory work.

Beyond these recognitions for excellence, we continued building on programs began in 2007 and prepared for 2009. A significant upgrade for the Division of Molecular Pathology laboratory was completed, giving the Division the tools needed for providing prompt test results for clinical consultation services and developing new assays for the surgical pathology departments. And the Scientific Laboratories made tremendous progress in creating an Institute-wide research and development laboratory that is now exploring new procedures that will be developed in house, validated and integrated into the diagnostic laboratories. These are focused on new prognostic markers for infectious disease. A total renovation of the Radiologic Pathology education facility was begun so that the AFIP could continue to provide world-class

education for the more than 500 radiologic pathology residency programs that rely on us. In the area of neuroscience, the AFIP is studying the effects of blast injuries on the brain by employing new scientific techniques in a laboratory with top instrumentation. And yes, we even took on the mission of helping educate military working dogs, with the Division of Forensic Toxicology taking on the task of providing drug training aids for this vital, DoD-wide program.

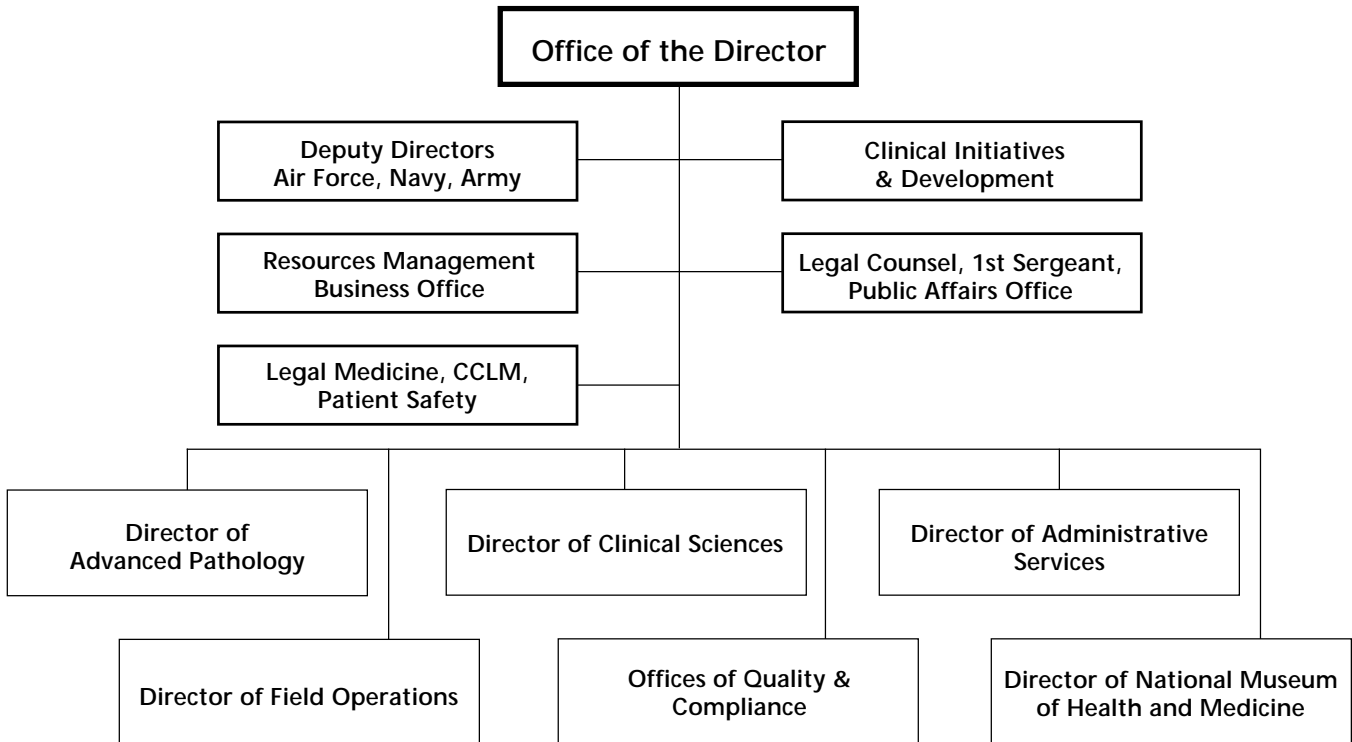
I'm proud to also report that the Institute – despite its uncertain future – continued to attract celebrated pathologists; one who returned to lead traumatic brain injury project; another who returned to reestablish AFIP's all-important Division of Cardiovascular Pathology; and still another who joined the staff to head up the Division of Ophthalmic Pathology. Their interest in joining the staff is a testament to both their dedication and the Institute's continued ability to hire the best in the business.

That's quite a list of accomplishments. So all in all – despite the cloud of confusion and uncertainty, the stress and the strains – 2008 was a pretty good year. And it was a good year because we chose to persevere, to not let the future distract us from focusing on our missions. As we continued on into what is yet another year of demanding challenges – both known and unknown – we remain inspired by those who have gone before us and dedicated to those who rely on us for the world class consultation, education and research they deserve.

A handwritten signature in black ink, reading "Florabel G. Mullick". The signature is fluid and cursive, with a large, stylized "F" and "M".

Florabel G. Mullick, MD, ScD, FCAP
Senior Executive Service
The Director

Organization



AFIP Key Personnel

Florabel G. Mullick, MD, ScD, FCAP
Senior Executive Service
 The Director, AFIP

Charles W. Pemble III, Col, USAF, DC
 Deputy Director (Air Force)
 Director, Field Operations

Jo Lynne W. Raymond, COL, VC, USA
 Deputy Director (Army)
 Director, Quality and Compliance
 Chief, Department of Veterinary Pathology

Robert D. Foss, CAPT, DC, USN
 Associate Director (Navy)

Sumitra Parekh, COL, MC, USA
 Director, Advanced Pathology

Christopher R. Owner, PhD
 Director, Clinical Sciences

Adrianne Noe, PhD
 Director, National Museum of Health and Medicine,
 AFIP

James L. Staiger, MD
 Director, Administrative Services

William A. Gardner Jr, MD
 Executive Director
 American Registry of Pathology

Catherine M. With, JD, LLM, LLM
 Major, Judge Advocate General's Corps, US Army
 Legal Counsel

Paul Stone
 Public Affairs Officer

SFC Chanda L. Sutton, USA
 First Sergeant

Board of Governors

The Board of Governors of the AFIP consists of the Assistant Secretary of Defense (Health Affairs), who serves as Chair of the Board; the Assistant Secretary for Health, Department of Health and Human Services; the Surgeons General of the Army, Navy, and Air Force; the Chief Medical Director for the Department of Veterans Affairs; and a former Director of the Armed Forces Institute of Pathology. The Board of Governors meets several times a year, and, based on the recommendations of the Scientific Advisory Board and institutional reports, establishes guidelines and broad administrative and professional policies in consonance with the medico-military objectives of the Institute. The Board of Governors met March 27, June 19, and November 4, 2008.

S. Ward Casscells, MD

Assistant Secretary of Defense for Health Affairs
Department of Defense
Pentagon, Washington, DC

LTG Eric B. Schoomaker, MC, USA

The Surgeon General
United States Army
Bolling Air Force Base
Washington, DC

VADM Adam M. Robinson, MC, USN

The Surgeon General
United States Navy
Bureau of Medicine and Surgery
Washington, DC

LTGen James Roudebush, USAF, MC

The Surgeon General
United States Air Force
Bolling Air Force Base
Washington, DC

RADM Steven Galson, MD, MPH

U.S. Surgeon General
Commander, USPHS Commissioned Corps
Department of Health and Human Services
Rockville, MD

Michael Kussman, MD, MS, MACP

Under Secretary for Health
Department of Veterans Affairs
Washington, DC

Robert F. Karnei, MD

Former Director (32nd), AFIP
Wytheville, VA



Florabel G. Mullick, MD, ScD, FCAP, SES
The Director
Date of Appointment — 25 June 2007

OFFICE OF THE DIRECTOR

MISSION/ORGANIZATION

The Director, Armed Forces Institute of Pathology (AFIP), is responsible for the overall direction, administration, policy formulation, business practices, operation and management of the organization in executing all of its assigned missions. The Director, AFIP, provides broad guidance and leadership for all areas of the Institute and insures that these areas contribute in an appropriate manner to the overall missions of the Institute. The Director ensures the integration of financial strategies, business planning, and the scientific activities of the Institute. The Director is responsible for program development and management review of all Institute resources and missions to insure they are consistent with planned resource objectives. The Director, AFIP is responsible for scientific policy, financial budgeting, and resources management oversight of all Institute programs and missions.

STAFF

James Affonco, MA, Chief of Staff
Ridgely L. Rabold, AAS, Executive Assistant
Hilda P. Elescano, Administrative Assistant

Deployment 2008

1. January 16-18: 2008 SEC Conference — San Juan, PR.
2. February 13-17, 2008: German Division of the IAP – Bonn, Germany.
3. February 21-22, 2008: AGMUS Board of Directors Meeting – San Juan, PR.
4. February 27-28, 2008: ARP Board Meeting – Washington, DC.
5. February 29 thru March 02, 2008: USCAP Meeting - San Diego, CA.
6. March 01, 2008: ADASP Meeting – San Diego, CA, AGMUS.
7. April 09-10, 2008: Board of Directors – San Juan, PR.
8. March 22-25, 2008: Defense Health Board Meeting – Takoma, Washington.
9. April 15-17, 2008: Brain Storming Meeting – San Juan, PR.
10. August 13-15, 2008: Public Policy Board Meeting – San Juan, PR.
11. August 28-29, 2008: US Advisory Board Meeting – San Juan, PR.
12. September 04-05, 2008: Defense Health Board Meeting – Crystal City, VA.
13. August 24-26, 2008: AGMUS Board of Directors – San Juan, PR.
14. October 02-04, 2008 : AGMUS Annual Seminar – San Juan, PR.
15. October 09-25, 2008: IAP Congress – Athens, Greece.
16. November 11-14, 2008: AGMUS Board of Directors – San Juan, PR.
17. December 10-12, 2007: AGMUS Board of Directors – San Juan, PR.
18. December 14-16, 2008: Defense Health Board Meeting – Washington, DC.

Lectures and Presentation:

The Future of Pathology: The America Perspective October 09-25, 2008, Bonn Germany

Abstracts:

1. Kalasinsky VF, Tristan JO, Strausborger SL, Blubaugh L, Burry L, Gaydos JC, MacIntosh VH, Johnston DS, Mullick FG. The Department of Defense (DoD) Internet-Accessible,

- Global Directory of Public Health Laboratory Services. Book of Abstracts of the Society of Armed Forces Medical Laboratory Scientists, New Orleans, LA, February 10 - 14, 2008.
2. Kalasinsky VF, Tristan JO, Strausborger SL, Blubaugh L, Burry L, Gaydos JC, MacIntosh VH, Johnston DS, Mullick FG. DoD Directory of Public Health Laboratory Services. Book of Abstracts of the International Conference on Emerging Infectious Diseases, Atlanta, GA, March 17 - 19, 2008.
 3. Kalasinsky VF, Tristan JO, Strausborger SL, Blubaugh L, Burry L, Gaydos JC, MacIntosh VH, Johnston DS, Mullick FG. The Department of Defense (DoD) Internet-Accessible, Global Directory of Public Health Laboratory Services and Joint Occupational and Environmental Surveillance Laboratory Compendium. Book of Abstracts of the Force Health Protection Conference, Albuquerque, NM, August 11 - 14, 2008.
 4. Van der Voet GB, Olabisi AO, Wagner DJ, Chapman GD, Mullick FG, Centeno JA. Raman Microspectroscopy characterization of tungsten-based alloys: the role of metal-binding speciation. Abstracts 4th International Conference on Trace Element Speciation in Biomedical, Nutritional and Environmental Sciences, Munich-Neuherberg, Germany, May 25-29, 2008, poster no P15.
 5. Van der Voet GB, Sarafanov A, Todorov TI, Centeno JA, Jonas WB, Ives JA, Mullick FG. Toxicology of dietary supplements: a case study. Abstracts 5th International Symposium on Recent Advances in Environmental Health Research, Jackson, MS, September 14-17, 2008, poster.
 6. Vander Voet GB, Olabisi AO, Wagner DJ, Kalinick JF, Jenkins HM, Chapman GD, Mullick FG, Centeno JA. Raman Microspectroscopy Characterization of Tungsten-Based Alloys: The Role of Metal Binding Speciation. Abstracts of the 4th International Trace Element Speciation in Biomedical, Nutritional and Environmental Sciences, Munich-Neuherberg, Germany, May 25 - 29, 2008.

Publication:

Van der Voet, GB, Sarafanov A, Todorov TI, Centeno JA, Jonas WB, Ives JA, Mullick FG. Clinical and analytical toxicology of dietary supplements: a case study and a review of the literature. *Biological Trace Element Research*. 2008; 125(1):1-12. Epub 2008 Aug 16.



Catherine M. With, JD, LLM, LLM
Major, US Army Judge Advocate General's Corps
Legal Counsel
Date of Appointment — 15 July 2006

OFFICE OF THE LEGAL COUNSEL

STAFF

Catherine M. With, JD, LLM, LLM, Major, US Army Judge Advocate General's Corps, Legal Counsel
Alan P. Cash, RN, JD, Deputy Legal Counsel
Charlene Davis, Administrative Assistant

ACCOMPLISHMENTS IN 2008

The Legal Counsel's Office provided legal services and legal advice on a wide range of topics to the Director and Staff of the AFIP, to include the legal issues regarding the unique relationship between the AFIP and the American Registry of Pathology (ARP), Animal research, Bioethics issues, Biosurety and Biosafety issues, Biotechnology, Base Realignment and Closure Law (BRAC), Claims, the Code of Conduct, Complementary and Alternative Medicine, Computer Crimes, Congressional Inquiries, Contract Administration/Review and Procurement law matters, Copyright issues, Credentialing, Criminal law (civilian), Deposition preparation, Environmental law, Ethics Reviews and Ethics Training, Fiscal Law, Food and Drug Law, Fraternalization, Freedom of Information Act issues, Genetics and the Law, Health Care law, Health Information and Technology, Health Information Portability and Accountability Act (HIPAA), Information Technology, Institutional Review Board, Intellectual Property, Intelligence activities law, International law, Labor and Employment Law, Law of War, Legal Assistance/Notary/Tax Support, Legal Issues surrounding DNA, legal research on many issues, Licensing issues, Litigation support and preparation, Medical-Legal issues, Medical records, Memoranda of Agreements/Understanding, Military and Civilian Personnel Law Issues, Military Justice, National Museum of Health and Medicine, National Practitioner Data Bank, OGE 450's and SF 278's, the Office of the Armed Forces Medical Examiner (OAFME), Operational Law, Patient Safety, Posse Comitatus issues, Privacy Act issues, Procurement Fraud issues, Quality Assurance, Regulatory law, Risk Management, Statutory research, Technology Transfer Agreements (Cooperative Research and Development Act), and Trademark issues.

1. The Office of the Legal Counsel devoted many hours to the multi-complex issues concerning BRAC, the Joint Pathology Center, Biological Select Agents and Toxins (BSAT), and unique legal and bioethical issues in healthcare, research and education.
2. The Office of the Legal Counsel provided substantial support and advice to the OAFME on a variety of matters, including issues affecting the OAFME in the Global War on Terrorism. Such support included:
 - Deployed to The Dover Port Mortuary and assisted the medical examiners/forensic pathologists with their operations.
 - Directly supported OAFME Virtual Autopsy research program whereby data from the forensic evaluation of gunshot or blast wound victims gathered by AFMES medical examiners processing the remains of service members who died while serving the United States contributed directly to research on battlefield ballistic injuries and to the development of new-generation body armor that will protect troops in battle.
 - Directly supported the AFMES in collecting, storing and appropriately releasing when required, the data collected in the Medical Mortality Registry which

performs surveillance to monitor all active duty deaths, to quickly identify fatalities that require autopsy by the AFMES, or could require a public health response, or those that could be the result of a bioterrorist act.

- Reviewed the requirements for release of autopsy reports.
 - Legal review and revision of MOA with other government agencies for DNA analysis.
 - Legal review and revision of MOA with NASA for support of space shuttle mission.
 - Legal representation at depositions of OAFME physicians and scientists.
 - Legal review of various FOIA requests.
3. The Legal Counsel's office coordinated numerous requests to interview and depose AFIP staff in connection with government and private litigation, or to obtain patient information relevant to litigation, and represented AFIP and DoD interests at several such interviews and depositions while advising staff members providing the testimony.
 4. The office continued its involvement as liaison to the Army Litigation Division and the Department of Justice with regard to pending tort claims and litigation. The office also provided support to Army Claims Service and Army Litigation Division on various claims filed against Army Military Treatment Facilities, as well as to various military prosecutors in courts martial.
 5. As the AFIP's designated agency ethics official and ethics counselor, the Legal Counsel provided ethics training, prepared written and oral opinions and advisory letters for AFIP leadership and individual staff members, and also managed the financial disclosure reporting required of certain staff members under the Joint Ethics Regulation. All AFIP personnel received ethics training as prescribed by the Department of Defense.
 6. The Office of the Legal Counsel provided legal support and advice on several copyright, licensing, software and nondisclosure issues. The office continued to oversee technology transfer activities, including coordination on additional cooperative research and development agreement proposals and management of material transfer agreement documents, to include:
 - Several Cooperative and Research Development Agreements involving AFIP veterinary service.
 - Drafted/edited and performed legal reviews on dozens of MOAs/MOUs, short term training agreements, data sharing agreements, and consultation service agreements with various Federal and Non-Federal entities pertaining to research, education and training.
 - At least a half dozen Material Transfer Agreements and Four amendments of Material Transfer Agreements for the transfer of biological agents for research purposes and pursuant to a Defense Threat Reduction Agency agreement.
 - Drafted/edited or performed legal reviews of a dozen Cooperative Research and Development Agreement (CRADA) Agreements, Material Transfer Agreements (MTA), and amendments to existing agreements.
 - A Cooperative and Research Development Agreements for the publication of an AFIP veterinary scientific text.
 - A Non-exclusive License for the production of assays for Department of Defense Programs.
 - AskAFIP trademark registered with the U.S. Patent Office in coordination with the Regulatory Law and Intellectual Property Division U.S. Army Legal Services Agency.
 7. The Legal Counsel continued to provide support to the IRB, Research Committee and IACUC.
 - Reviewed at least 25 scientific research proposals as part of the IRB and the Research Committee.
 8. The Legal Counsel provided routine legal advice and guidance on the day-to-day work of the AFIP in such areas as:

- Participated as member of numerous AFIP committees: AFIP Executive Committee, AFIP Executive Proponency Committee, Principal Deputy Director Council, Institutional Review Board (IRB), Research Committee, Institutional Animal Care and Use Committee (IACUC), Quality Assurance Committee, Credentials Committee, HIPAA Compliance Committee, and Safety Committee.
 - MOAs with other agencies for provision or exchange of technical and/or educational services, as well as agreements with nonfederal and foreign entities pertaining to research, education and training.
 - Requests by outside parties for access to patient records and tissues.
 - Coordination with the AFIP Office of Public Affairs to offer legal advice and counsel when necessary, particularly in the areas of HIPAA and Privacy Act compliance.
 - Responding to biosurety and biosafety legal issues.
 - Civilian and military personnel administration, discipline, and investigations.
 - Offers by outside sources to pay employees' travel expenses.
 - Proposed revisions to AFIP regulations.
 - Military administrative law matters.
 - Contract administration and procurement law matters.
 - Fiscal law matters, including the structure of reimbursable operations.
 - Issues specific to the operation of the National Museum of Health and Medicine.
 - Extensive continuing support to the AFIP's HIPAA program.
 - Reviews of externally funded research protocols and development of data sharing agreements and Business Associate Agreements.
9. The Legal Counsel's Office personnel participated in the following conferences and training events in 2008:
1. American College of Legal Medicine, Annual Meeting, March 2008.
 2. Joint Department of Defense/US Army Medical Command 2008 Health Care Law Conference, March 2008.
 3. The World Wide Continuing Legal Education Program, The Judge Advocate General's Legal Center and School, October 2008.
 4. Lorman Medical Records Training Course, December 2008.
 5. Defense Health Board Meetings, 2008.

Lectures and Presentations during 2008:

Major With:

1. 2007 - ongoing: Instructor, Legal and Ethics Issues, EMT-Basic Course, 68W Courses, Walter Reed Army Medical Center, Washington, DC.
2. March 2008: Presenter, Legal Guidelines for End of Life Issues, Medical Ethics Course, at the Walter Reed Army Medical Center, Washington, DC.
3. March 2008: Presenter, Tissue Ownership, CAPSCI Conference, Washington Academy of Sciences.
4. March 2008: Presenter, Patient Autonomy and End of Life Issues, Walter Reed Chaplains, at the Walter Reed Army Medical Center, Washington, DC.
5. May 2008: Lecturer, Genetics and the Law - Legal and Policy Issues, Lunch With the Law Lecture Series, Armed Forces Institute of Pathology, Washington, DC.
6. May 2008: Lecturer, Legal and Policy Issues Concerning Electronic Medical Records, Lunch With the Law Lecture Series, Armed Forces Institute of Pathology, Washington, DC.
7. May 2008: Adjunct Professor, Various topics in Health Law, the Health Care Law Elective, 55th Graduate Course, The Judge Advocate General's Legal Center and School, Charlottesville, VA.
8. July 2008: Lecturer, History of Health Law, & Legal and Policy Issues – Complementary, Alternative & Integrative Medicine, AFIP Summer Intern Program, Armed Forces Institute of Pathology, Washington, DC.
9. August 2008: Guest Speaker, 2009 Armed Forces Inaugural Committee, Washington, DC.

10. September 2008: Lecturer, Genetics and the Law - Legal and Policy Issues, AFIP Grand Round Video teleconference.
11. October 2008: Speaker, Science and the Law: Reel to Real – the Impact of TV's CSI; Science and the Law: A Tale of Two Cultures – What are the Courts to Do in the Face of Emerging Science and Technologies?, American Association for the Advancement of Science and the Washington Academy of Sciences.
12. October 2008: Presenter, Legal Guidelines for End of Life Issues; Advanced Directives; and Complementary and Alternative Medicine, Medical Ethics Course, at the Walter Reed Army Medical Center, Washington, DC.
13. November 2008 - ongoing: Instructor, Copyright Law, Instructor Training Course, Nursing Education and Staff Development, Walter Reed Army Medical Center, Washington, DC.

Representation to Professional Organizations:

Major With:

1. Member, American College of Legal Medicine.
2. Member, American Bar Association.
3. Member, American Bar Association – Health Law Section.
4. Member, American Health Lawyers Association.
5. Member, American Society of Law, Medicine and Ethics
6. Member, Washington Academy of Sciences



Paul Stone
Public Affairs Specialist
Date of Appointment – 26 June 2007

PUBLIC AFFAIRS

STAFF

Paul Stone, Director
Michele Hammonds, Public Affairs Specialist (returned from one-year active duty in Kuwait in June 2008)

MISSION

The Office of Public Affairs is responsible for providing public affairs support and advice to the Director and staff of the Institute

IMPACT

For Public Affairs, 2008 was a year of great strides forward in better serving AFIP customers, beginning with a total redesign of the AFIP external Web site. The existing Web site was scrapped and a new one – including all new content – was built and launched within a four-month period. The result of this project is a Web site that is attractive, intuitive to use, focused on AFIP's core missions and 100 percent customer-service oriented. Although the Public Affairs Office was only fully staffed for half of 2008, it was still able to execute a full range of external and internal communications programs in support of AFIP's essential military and civilian health care missions.

MEDIA RELATIONS

Responded to more than 30 media queries, including high profile deaths of military personnel and an AFIP employee who was tragically killed; a CBS "60 Minutes" interview on the investigation into the death of Sgt. Pat Tillman; a Science Magazine request for information on AFIP's BSL/BSAT program; and requests for information on the database of DNA profiles on detainees. The most extensive media relations project centered on a National Geographic Channel special on identification of the last two children of Czar Nicholas II. AFIP's Armed Forces Identification Lab played a central role in the identification process, and National Geographic requested assistance in telling the story. The project required more than 26 hours of filming at AFDIL and in Russia, as well as at National Geographic's central office in Washington. The result was a compelling documentary that highlighted AFDIL's expertise and personnel and its ability to finally resolve the mystery of what happened to the last previously unidentified Russian royal family. Additionally, successfully marketed AFIP's new Embedded Metal Fragment Registry, resulting in both national and international publicity.

Specific media outlets included:

The Washington Post

The American Forces Press Service

The Pentagon Channel

The San Antonio-Express News

The St. Louis Dispatch

The Associated Press

The Baltimore Sun

The Los Angeles Times

The Montgomery County Gazette

CBS News

WJLA-Television
The History Channel
The National Geographic Channel
CNN
French Television

Internal Communications:

Re-focused the AFIP LETTER to emphasize the core missions of the Institute and to highlight new research and technology initiatives.

Increased the number of Newcomer's Briefings and implemented a tracking process to ensure that all new personnel had an opportunity to attend.

Reviewed approximately 75 scientific abstracts, articles and presentations to identify any possible problems with operational security, HIPPA, or actionable medical information.

Community Relations/Marketing:

Arranged tours of AFIP laboratories for three high school groups and arranged presentations by staff members on careers in pathology and forensics.

Marketed AFIP courses and ASK AFIP at the following conferences:

1. US-Canadian Academy of Pathology Conference, March 2008, Denver Colorado
2. AUSA Medical Symposium, June 2008, San Antonio, Texas
3. International Academy of Pathology, October 2008, Athens, Greece
4. Association of Military Surgeons of the United States, November 2008, San Antonio, Texas



Steven A. Wilson, Col, USAF, BSC, (Arrived Aug 08)
Director
Date of Appointment — 1 September 2002

CENTER FOR CLINICAL LABORATORY MEDICINE

STAFF

Steven A. Wilson, Col, USAF, BSC, Director (Arrived Aug 08)
Dan E. Harms, COL, MS, USA, Associate Director
Larry R. Ciolorito, CDR, MSC, USN, Associate Director
Imelda Catalasan, Maj, USAF, BSC, Dep. Director, Office of Lab Management (Air Force)
Gerry S. Rapisura, HMC, USN, LCPO, Navy CLIP Program Manager
Robert D. Wojtaszczyk, SGM, USA, Army CLIP Program Manager
Connie M. Wise, SSG, USA, Assistant Army CLIP Program Manager
Gary S. Brown, MSgt, USAF, Air Force CLIP Program Manager (Retired Jun 08)

IMPACT

Directs the operation of the DoD Clinical Laboratory Improvement Program as defined by DoD Instruction 6440.2 and Public Law 100-578 (Clinical Laboratory Improvement Act (CLIA)). Administers public law and federal policy for military medical laboratory operations in peace, contingency, and wartime; ensuring no restrictions or cessation of laboratory services that would impede DoD mission requirements.

Regulatory Oversight

- Determines policy that provides guidance for all military medical laboratory operations in the DoD.
- Directs activities and funding of an operating budget of over \$3.5 million annually for office administration and component central contracts for medical laboratory inspection and accreditation and proficiency testing.
- Resolves situations where public or state law is in conflict with DoD policy.
- Responds to congressional, military, or public inquiries relative to laboratory services.
- Reviews laboratory operations data to include accreditation and regulatory inspection results and proficiency testing results.
- Coordinates laboratory technical assistance and intervention strategies among DoD laboratories.

Consultative Services

- Provides consultative services and impact analysis on clinical laboratory issues to the Director, Armed Forces Institute of Pathology (AFIP), to each Service's Surgeon General, and to the Office of the Assistant Secretary of Defense for Health Affairs.
- Provides professional and management guidance to DoD laboratory officers and enlisted members.
- Serve as members of the DoD Laboratory Joint Working Group (LJWG).
- Army Associate Director serves as the DoD Gatekeeper for Tri-Service participation in the Centers for Disease Control and Prevention (CDC) initiative to develop a biological warfare detection and response system, i.e., National Laboratory Response Network (LRN).

EDUCATION

Department staff presented 37 workshops/seminars at various venues during the year.

ACTIVITIES

- The following are DoD laboratory registration statistics as of December 31, 2008:
 - Army: 624 certificates with 1144 sites
 - Navy: 170 certificates with 607 sites
 - Air Force: 345 certificates with 655 sites
 - NOTE: This office saves over \$250,000 annually in CMS CLIA certificate registration fees.
- Enhancement/sustainment of Tri-Service participation in CDC-sponsored LRN Partnership Initiative. The purpose of the LRN is to rapidly detect and identify biological and chemical threat agents and to alert public health and law enforcement agencies of a suspected release to minimize exposure to that agent. The LRN may also establish surveillance/diagnostic capability for select emerging infectious diseases or other public health threats. CCLM functions as the coordinating office for DoD participation in the LRN as directed by the 3 Service SGs. As the coordinator of DoD laboratory network participation, CCLM must communicate, implement, and ensure compliance with all changes in federal law regarding handling of select agents, specimen collection, and testing protocols, and maintenance of proficiency by DoD network labs. To assist with the communication/coordination responsibilities, CCLM made the update of LRN progress, activities, and issues a standard agenda item at the biannual Laboratory Joint Working Group meetings. Significant actions during CY08 included:

- ***Air Force:***

- Wilford Hall Medical Center's laboratory was downgraded per facility request from an LRN Reference laboratory to an LRN Advanced Sentinel laboratory in May 2008. The laboratory also withdrew its registration in the CDC's Select Agent Program.
- The effort to establish 'H5 Only' reference testing sites at Osan Air Force Base and Incirlik Air Force Base laboratories was ended in January 2008.
- Travis Air Force Base laboratory terminated its effort to become an 'H5 Only' reference testing site as of March 2008.
- Andrews Air Force Base laboratory terminated its status as an 'H5 Only' reference testing site as of December 2008.

(NOTE: 'H5 Only' Reference laboratories are established to increase DoD's force health protection readiness and are Sentinel-level or other laboratories with the technical personnel expertise and facility requirements that allow performance of PCR test procedures and are either located in remote locations or are high personnel transit centers. Increasing force health protection for DoD personnel stationed or operating within the Pacific Rim was a primary goal of this effort, however, the project lost funding priority in FY08.)

- ***Army:***

- BSL-3 laboratory status (upgrades to current LRN Reference laboratory facilities):
- Tripler Army Medical Center – CDC National Select Agent Registry (NSAR) Program facility inspection and the DA Safety Office pre-operational survey were completed successfully. Transition to operational status is expected in CY09.
- Eisenhower Army Medical Center – installed and commissioning process was initiated; needs CDC NSAR Program facility inspection and DA Safety Office pre-operational survey.
- Madigan Army Medical Center – laboratory has been commissioned; needs CDC NSAR Program facility inspection and DA Safety Office pre-operational survey.
- Brian Allgood Army Community Hospital – most repairs required due to damage during shipment of the modular laboratory have been made and completion of installation is pending; commissioning process and DA Safety Office pre-operational survey must then be completed.
- BSL-3 laboratory status (LRN Sentinel to LRN Reference laboratory status):
- William Beaumont Army Medical Center – CDC NSAR Program facility inspection was successfully completed and correction of findings from the DA Safety Office pre-operational survey is on-going.
- Carl R. Darnall Army Medical Center - CDC NSAR Program facility inspection was successfully completed and correction of findings from the DA Safety Office pre-opera

tional survey is on-going.

- Womack Army Medical Center – Animal and Plant Health Inspection Service (APHIS) Select Agent Program facility inspection was successfully completed and correction of findings from the DA Safety Office pre-operational survey is on-going.
- 86th CSH in OIF was approved by the CDC LRN as a ‘H5 Only’ testing site in October 2008. Efforts to coordinate the shipment of required reagents from the CDC LRN to the 86th CSH were on-going as of the end of CY08.
- Landstuhl Regional Medical Center’s BSL-3 laboratory was undergoing significant renovation/reconstruction and will be inoperational for an extended period of time. The laboratory was downgraded from LRN Reference to LRN Sentinel laboratory status in December 2008. It will remain in LRN Sentinel laboratory status until the renovation/reconstruction is completed and the laboratory is recertified.
- **Navy:**
 - Fleet assets establishing ‘H5 Only’ LRN Reference testing capability during CY08 included the USS Ronald Reagan (operational), USS George Washington (operational), USS Nimitz (operational), USS Boxer (operational), and the USNS Mercy (operational). Establishment of the H5 influenza testing capability on the USNS Mercy required coordination with OASD(HA) to establish additional guidance for how the assay would be utilized during its humanitarian assistance missions.
 - NH Yokosuka – training of staff is pending and the lab was not operational with the H5 RT-PCR assay as of the end of CY08.
- **Proficiency Testing (PT):** All registered laboratories performing moderate- and/or high-complexity procedures (and most laboratories performing waived procedures) were enrolled in centralized Service-specific PT contracts during 2008. CCLM reviewed DoD laboratory performance for 265,007 PT survey challenges during CY08. There were 5 instances of repetitive PT failures (failure on 3 consecutive or 3 out of 4 consecutive survey events) in 2008 that required action by the respective CCLM Service representative. When such a PT failure occurs, all Services require that the performing laboratory immediately cease testing for the failed analyte, conduct an investigation to determine why the repetitive failures occurred, implement corrective action, and forward all documentation to their respective CCLM Service representative for review. If the respective CCLM Service representative agrees that appropriate corrective action has been taken, approval is given to resume testing for the analyte. Overall, proficiency test performance for all survey events was 97.1%, well above the 80% standard.
- **Accreditation:** The College of American Pathologists (CAP), the Joint Commission (TJC), and COLA are all institutions that accredit DoD laboratory facilities. Each facility is inspected biennially, results of inspections are forwarded to CCLM for review, and CCLM maintains active liaison with DoD laboratory facilities and accrediting organizations, to help ensure effective communication, compliance, and problem resolution.
- **Laboratory Composite Health Care System (CHCS):**
 - Interconnectivity: Continued to support the ongoing efforts to expand the use of CHCS interconnectivity software to establish electronic laboratory data transfer between DoD facilities, DoD and VA facilities, and DoD and civilian reference laboratories. CCLM staff continue to assist with the resolution of problems that affect the deployment and implementation of Laboratory Interoperability (LIO)/Laboratory Data Sharing Initiative (LDSI) software. LIO/LDSI has significantly increased patient safety and improved quality of patient care by eliminating transcription errors and allowing real-time retrieval of test results from reference laboratories.
 - Current Procedural Terminology: Maj Catalasan continued to be a member of the Tri-Service Laboratory Current Procedural Terminology (CPT) Working Group and served as the liaison to the Reference Code Table Synchronization and Standardization Working Group. She led the Tri-Service group that performed the validation of the lab business rules and coordinated updates to the most current lab CPT codes for inclusion in the baseline files deployed to appropriate military healthcare systems.
 - CAPT Ciorlito, Col Wilson, and other CCLM staff played lead roles in championing enhancements to CHCS functionality. CCLM monitored DoD’s progress towards a “Block Three” laboratory COTS acquisition, and advocated funding of System Change Requests (SCRs) to CHCS in the absence of a follow-on acquisition. CCLM’s advocacy, subsequent liaison with Service Medical CIOs, and assistance in validating and ranking proposed SCRs helped move DoD towards multi-million dollar enhancements beginning in FY09. Maj

Catalasan chaired the Tri-Service Laboratory Information System committee that analyzed the SCR requirements and provided justification for their prioritization.

- Continued participation as TMA Integrated Project Team members in the effort to standardize newborn screening within the DoD and expand the panel of tests performed to match the screening panel recommended by the American College of Medical Genetics. CCLM members coordinated the survey and data call for all three Services in order to collect current information on how the newborn screen program is being implemented in DoD military treatment facilities. The Statement of Work, Technical Submission Requirements, and Technical Evaluation Factors required were submitted by CCLM as part of an RFP to provide comprehensive screening under a uniform DoD contract with a commercial reference laboratory. CCLM staff continue to serve as SMEs to Defense Supply Center, Philadelphia (DSCP) tracking the extended contracting process and reviewing and validating all technical requirements. As of the end of CY08, the Statement of Work and related requirements remained in extensive review, with CCLM closely monitoring progress and helping to expedite wherever possible. Once awarded and implemented at DoD sites, the contract will provide for a comprehensive battery of screening tests, greater standardization within the military healthcare system, and enhanced patient safety.
- Continued to serve as subject matter experts in the evaluation of DoD options for integration of Laboratory/Anatomic Pathology Commercial-Off-The-Shelf System (COTS) information technology capability. Represented both Service and DoD laboratory communities in monitoring these efforts, providing strategic review of options for Lab-COTS procurement and integration and promoting laboratory community requirements for enhanced capabilities. Served as a primary resource for laboratory information technology strategy to the Defense Health Information Management System, Information Management (Tricare Management Activity) and the Service's Chief Information Officers.
- Provided recommendations to the lab accreditation/proficiency testing provider for the enhancement of online reporting capabilities to allow easy and user-friendly access to all DoD laboratory data.
- **Col Wilson/Maj Catalasan:**
 - Advisor to the Air Force Medical Service Laboratory Bio-Defense Steering Committee on proficiency testing requirements and procedural issues.
 - Actively engaged in promoting bio-defense initiatives. Coordinated laboratory breakout sessions at the 2008 Global Medical Readiness Symposium. These training sessions provided the most recent updates to laboratory testing policies, technology used for identification of bio-agents, and current and future bio-defense programs. Developed first-ever continuity documentation for future planning purposes.
 - Member, planning committee for the 2008 Society of Armed Forces Medical Laboratory Scientists Annual Meeting; coordinated workshops for the conference.
 - Conducted Staff Assistance Visit at Kirtland AFB; provided recommendations/options for implementation of Laboratory Data Sharing Initiative between the 377th Medical Group to the New Mexico Veterans Administration Healthcare System. In addition, guided laboratory director and staff on requirements for upcoming on-site laboratory accreditation inspection.
 - Revised educational materials for the Biomedical Officers Management Orientation laboratory breakout session courses; trained newly accessioned Air Force lab officers on basic laboratory practices and leadership fundamentals.
 - Continued to serve as subject matter experts for AF laboratory information system issues. Championed the development of AF-wide DoD Information Assurance Certification and Accreditation Process (DIACAP) for RALS-Plus, a data management system that allows glucometer results to be entered/recorded in CHCS.
 - Served on High Performance Team that developed the requirements for the Ancillary Test Reporting System. The goal of this project is an automated test result reporting system in which staff can enter test result notifications/messages to a large number of patients quickly while allowing patients to go online or to call and receive result messages. Such a process could save hours of time daily, and would free staff for other essential patient care opportunities.
 - Provided recommendations for the revision of the Air Force Instruction, Medical Service Awards; clarified criteria for laboratory awards to ensure maximum participation and accurate eligibility requirements for nominees.
 - Col Wilson: As Laboratory Consultant to the Air Force Surgeon General, attended the Biomedical Sciences Corps Developmental Team Board; managed deployment manpower

requirements and oversaw force development of over 180 laboratory officers.

- ***COL Harms:***

- Coordinated the renewal of the Memorandum of Agreement between the Department of Defense and the Department of Health and Human Services on the Clinical Laboratory Improvement Amendments of 1988 (CLIA 1988). The renewal action was initiated via e-mail with points of contact in the Division of Laboratory Services, Centers for Medicare and Medicaid Services (CMS), in March 2008 and was completed in December 2008. The renewed agreement is for a six-year period beginning on January 14, 2009.
- Continued to serve as a laboratory subject matter expert to OASD(HA) for pandemic influenza preparedness and other force health protection issues, to include participation in a meeting to draft the DoD Laboratory Network (DLN) DoD Instruction and revise the DLN Charter in June 2008 and in an Institute of Federal Health Care roundtable on 'Examining Collaborative Efforts in STD Screening and Treatment' in June 2008.
- Continued participation in the DHHS Pandemic and Seasonal Influenza Risk Management Meeting and its Influenza Diagnostics Working Group; coordinated with Service laboratory program managers and Service LRN Gatekeepers for issues being addressed within these meetings as necessary. Served on the planning committee for a 'U.S. Interagency Workshop: Rapid Diagnostics for Detection of Novel Human Influenza Viruses' held in April 2008 - moderated a presentation session on 'Regulating Human Influenza Diagnostic Devices' during the workshop.
- Worked with CDC Influenza Division, GEIS, and LRN Service Gatekeeper points-of-contact to coordinate deployment of the CDC's Food and Drug Administration (FDA)-cleared 5-target influenza assay to priority DoD activities. USAFSAM and NHRC were designated as Phase I additions to the CDC's assay deployment plan.
- Attended LRN Partners meetings in Atlanta, Ga, in February 2008 and in Crystal City, Va, in August 2008.
- Coordinated DoD SME participation in the CDC LRN's Strategic Planning Study that was conducted July – September 2008.
- Attended a LRN Gatekeepers meeting held at the CDC in Atlanta, Ga, in July 2008.
- Attended planning meetings for the DA IG special inspection of Army LRN Reference laboratories at MEDCOM and the CDC in October 2008.
- Member of the 2009 LRN National Meeting planning committee.
- Attended a National Select Agent Workshop sponsored by APHIS and CDC in Riverdale, Md, in December 2008.
- As the DoD LRN Gatekeeper, participated in an ICLN Integrated Response TTX in Washington, DC, in December 2008.
- As required, consulted with operational laboratories and points-of-contact in the FDA's Office of In Vitro Diagnostic Device (OIVD) Evaluation and CMS's Division of Laboratory Services. Issues addressed included compliance with FDA in vitro diagnostic device regulations, differences in diagnostic testing versus epidemiologic/surveillance testing as they relate to regulatory requirements, and compliance with CLIP requirements for verifying or establishing test method performance specifications.

- ***CAPT Ciolorito:***

- Provided oversight for clinical laboratory/blood banking requirements for operational support to the Global War on Terrorism; identified and coordinated the deployment of 10 Navy medical technologists during CY08.
- Continued to monitor Navy preparedness for a potential influenza pandemic; continued to promote the enhancement of 'H5 Only' Reference laboratories within the PACOM and on fleet assets.
- Promoted major changes to Office of Personnel Management (OPM) standards for the Medical Technologist specialty. OPM standards for the GS-0644 series are 25 years old and increasingly anachronistic, and govern the hiring of medical technologists for all federal government agencies. CAPT Ciolorito has reinitiated efforts to include a requirement for national certification within this standard.
- Initiated a comprehensive analysis of staffing and workload for all Navy clinical laboratories, with data (and recommendations for billet changes) being provided to the Navy Surgeon General.
- Personally managed and maintained a Web Page for the Navy Medical Technology community, providing member contact data, information on assignments and deployments, career guidance, and educational data.

- **SGM Wojtaszczyk:**

- Reviewed first-ever policy designed to assist the medical staff at the US Military Entrance Processing Command with standardizing the performance of waived testing throughout all 60 clinical facilities.

- **SSG Wise:**

- Earned Medical Laboratory Technician certification through the American Medical Technologists.

Presentations:

1. January – December 2008: Web-based briefings routinely posted to the Navy Medical Technology webpage, to include presentations on Navy Medical Technology Community Management, experiences of deployed Navy personnel, Workload Recording, , and changes to training programs for enlisted laboratory technicians; LR Ciorlito.
2. January 2008: Washington, DC, Laboratory Joint Working Group Meeting, “CCLM CY07 review” and “CY07 Consolidated CAP Inspection Outcome Review,” DE Harms.
3. February 2008: NATO CBRNMedWG, Brussels, Belgium, “The Laboratory Response Network & U.S. DoD Participation as a LRN Partner,” DE Harms.
4. February 2008: Atlanta, Ga, LRN Partners Meeting, “DoD LRN update,” “DLN charter update,” DE Harms.
5. February 2008: New Orleans, La, Society of Armed Forces Medical Laboratory Scientists, Thirty-Sixth Annual Meeting, Army Breakout Session, “CCLM CY07 review,” “LRN update,” “AFIP Pam 40-24 update,” “CLIPO and AFIP Pam 40-24 brief,” “CAP accreditation application form completion familiarization,” “TJC survey application form completion familiarization,” DE Harms.
6. February 2008: New Orleans, La, Society of Armed Forces Medical Laboratory Scientists, Thirty-Sixth Annual Meeting, “Navy breakout session,” LR Ciorlito.
7. February 2008: New Orleans, La, Society of Armed Forces Medical Laboratory Scientists, Thirty-Sixth Annual Meeting, “What every USAF laboratorian should know,” “Intermediate developmental education in-residence,” I Catalasan.
8. February 2008: New Orleans, La, Society of Armed Forces Medical Laboratory Scientists, Thirty-Sixth Annual Meeting, “The DoD Clinical Laboratory Improvement Program,” GS Rapisura, RD Wojtaszczyk.
9. April 2008: Interagency PI Diagnostics Workshop, Washington, DC, “CLIA – establishment and verification of test performance specifications,” “Guidelines for laboratory planning and diagnostics as contained in pandemic influenza: clinical guidelines for the military health system,” DE Harms
10. May 2008: Las Vegas, Nv, United States Military Entrance Processing Command Chief Medical Officers Conference, “The DoD clinical laboratory improvement program—Army actions,” RD Wojtaszczyk.
11. August 2008: Crystal City, Va, LRN Partners Meeting, “DoD LRN update,” “DLN charter (revised as of 6/17/08) update,” DE Harms.
12. August 2008: Sheppard AFB, Tex, Biomedical Officer Management Orientation Course, “Air Force laboratory career field overview,” “Leadership,” “Laboratory joint working group,” “Management 101, the basics,” “Officership,” “Officer performance reports, you on a piece of paper,” SA Wilson.
13. August 2008: Sheppard AFB, Tex, Biomedical Officer Management Orientation Course, “The ins and outs of workload recording,” “Clinical laboratory management indicators,” “Laboratory standard cost methodology,” “AF manpower model,” “Clinical laboratory improvement program,” “PT basics,” “LRN and bio-defense,” I Catalasan.
14. September 2008: San Antonio, Tex, Army Junior Lab Officer’s Workshop, “CCLM CY07 review,” “AFIP Pam 40-24 – regulatory issues and concerns,” “CAP accreditation application form completion familiarization,” “TJC survey application form completion familiarization,” DE Harms.
15. October 2008: Washington, DC, Navy Bureau of Medicine and Surgery, “Status Report on the Navy Medical Technology Community,” LR Ciorlito.

RESEARCH

Publications:

1. Ciorlito LR. Consultant’s Corner, Society Scope. Society of Armed Forces Medical Laboratory Scientists Newsletter. Winter 2008; Vol 11, Number 1.

2. Wilson SA. Consultant's Corner, Society Scope. Society of Armed Forces Medical Laboratory Scientists Newsletter. Fall 2008; Vol 11, Number 3.

PROFESSIONAL ACTIVITIES

Official Trips:

1. February 2008: Society of Armed Forces Medical Laboratory Scientists, Annual Meeting, New Orleans, La, Coordinated various elements of the annual meeting as a member of the Board of Directors; directed and coordinated Navy Officer participation and professional development; directly mentored and assisted in the subsequent duty station assignment of 30 officers, LR Ciorlito.
2. September 2008: Society of Armed Forces Medical Laboratory Scientists, mid-year meeting of the Board of Directors, Reno, NV, Assisted in the overall direction of the organization and in the planning and venue review for the 2009 annual meeting, LR Ciorlito.

Professional Participation:

1. Service as the Vice President of the Society of Armed Forces Medical Laboratory Scientists, January– February 2008, provided leadership of all planning for the February 2008 annual meeting of the Society, LR Ciorlito.
2. Service as an Ex-Officio Member of the Board of Directors of the Society of Armed Forces Medical Laboratory Scientists, March–December 2008, provided leadership of the Society, LR Ciorlito.
3. Service as an Ex-Officio Member of the Board of Directors of the Society of Armed Forces Medical Laboratory Scientists, August–December 2008, provided leadership of the Society, SA Wilson.
4. Service as an Advisor, Clinical and Laboratory Standards Institute Subcommittee on Procedures for the Handling and Processing of Blood Specimens; January–December 2008, reviewed standards and provided recommendations for implementation in the international laboratory community, I Catalasan.

GOALS

1. Support the United States Department of Defense readiness posture and contribute to the ongoing health and well being of military personnel.
 - Continue to coordinate with national clinical laboratory accrediting agencies to resolve any issues that impact the accreditation of DoD laboratories.
 - Continue to provide consultation to the Armed Services Blood Program Office on restructuring and consolidation issues.
 - Continue to be a resource for information on the development of biological warfare agent identification and emerging infectious disease procedures, biosurety, and select agent handling rules, and the oversight of the PT program for LRN Sentinel, Reference, and National labs.
 - Continue to provide support for the establishment of field-deployable equipment/supply requirements.
 - Key role/membership in the Integrated Consortium of Laboratories Network (ICLN) and the DoD Laboratory Policy and Coordinating Group. The former to ensure DoD representation to the U.S. national consortium for bio-defense policies and processes and the latter to ensure DoD stakeholders' say in planning and coordinating bio-defense posture into the future.
2. Contribute to the provision of top-quality, cost-effective health care benefits.
 - Review and analyze DoD reference laboratory utilization patterns to identify candidate tests for diversion to cost saving DoD testing facilities.
 - Support the continued development and evolution of the Laboratory Joint Working Group.
 - Promote potentially cost saving Tri-Service consolidation of cytology and molecular/genetic testing services.
 - Promote the adoption of the recommendations made by the American College of Medical Genetics regarding expansion of newborn screening.
 - Champion efforts geared towards the implementation of automated solutions and information technology advancements that contribute to cost-effective systems, increased staff

productivity while raising the standard of patient care.

3. Assist in the development of military and civilian leaders and staff who excel in a changing world.

- Attend the Society of Armed Forces Medical Laboratory Scientists annual meetings. Present the status of CLIP registration, identify problem areas, outline the long-term plan, and identify anticipated changes made by CLIAC.
- Educate members of the DoD laboratory community on Laboratory Joint Working Group projects and issues.
- Establish communication lines with laboratory professional and scientific organizations to enhance awareness of best practices, technological advancements, and future developments in the laboratory field.



Geoffrey W. Rake, MD, MSA
Director
Date of Appointment — 6 October 2003
(contractor, 2 September - 3 October 2003)

DEPARTMENT OF DEFENSE PATIENT SAFETY CENTER

STAFF

Professional:

- Paul Hoerner, Lt Col, USAF, Pharmacist, Deputy Director
- Rajasri Roy, PhD, Epidemiologist (contractor)
- (D) Mary Ann Davis, RN, Safety Officer (contractor)
- Pamela Copeland, RN, JD, Safety Officer (contractor)
- (A) Susan Freeburn, RN, Safety Officer (contractor)
- Jean-Philippe Chartol, Data Analyst (contractor)
- Richard Hildreth, Information Systems (contractor)

Administrative:

- Peter Stifel, Administrator (contractor)
- Pamela Oetgen, Newsletter Editor (contractor)
- Nanette Barry, Secretary (contractor)
- Greg Hacke, Technical Writer (contractor)

IMPACT

In 2008 the Department of Defense (DoD) Patient Safety Center (PSC) fully met its mission as defined in statute, DoD Directive and DoD Regulation. The PSC, established in 2000, maintains the DoD Registry for patient safety data collected by the Services from 169 military medical and dental clinics and hospitals worldwide.

The PSC, in 2008, produced two Quarterly Summaries (shifting mid-2008 to a twice yearly Summary) and the fifth Annual Summary of Information Reported to the PSC. In addition, the PSC published quarterly Patient Safety Newsletters, three Focused Reviews exploring our data in areas of particular concern, one DoD Patient Safety Alert, two Safety Advisories, and our first Medication Safety Notice. The PSC continued its active participation in the procurement of a commercial of the shelf patient safety reporting (PSR) system produced by DATIX. Initial deployment of PSR is currently planned for late FY 2009. As an interim, the PSC worked with the Services to develop and field an expanded monthly reporting tool for collecting aggregate patient safety events. The PSC collaborated with the Army Pharmacovigilance Center to identify potentially unsafe medications through post-market surveillance and take actions to improve the safety of medications used throughout the military health system. Lastly the PSC, representing DoD, participated in the Agency for Healthcare Research and Quality's (AHRQ) development of common formats for nation-wide reporting of adverse events as part of the deployment of the Patient Safety and Quality Improvement Act of 2005.

Bottom line: 2008 continued our efforts to identify potentially unsafe DoD medical practices and conditions and provide solutions for improving patient safety across DoD.

CONSULTATION

The DoD PSC Registry collects, analyzes, and reports cases on a fiscal year basis. The cases are collected in four separate streams: Monthly Summary Reports of non-medication events (includes near-misses and actual events), MEDMARX medication error events, Root Cause Analyses (RCA), and Failure Mode and Effects Analysis (FMEAs) or other quality improvement studies (e.g., Lean, AFSO21).

<i>Cases</i>	<i>Total cases (FY2008)</i>
Monthly summary reported (non-medication) events	75,229
MEDMARX (medication events)	
Inpatient	7,746
Outpatient	25,541
RCAs	60
FMEA/quality improvement studies	59

PROFESSIONAL ACTIVITIES

Official trips:

1. January 2008: TRICARE MHS Conference, Washington DC, G Rake.
2. April 2008: Preventing Patient Falls Conference, Tampa FL, P Copeland
3. May 2008: National Patient Safety Foundation Congress, Nashville TN, G Rake.
4. August 2008: Polytrauma Research Consortium, Tampa FL, P Copeland.
5. August 2008: WISDOM Course, Falls Church VA, J-P Chartol .
6. September 2008: Story Telling Workshop, Arlington VA, P Copeland, S Freeburn, P Hoerner, G Hacke, G Rake.
7. September 2008: AHRQ, Promoting Quality – Partnering for Change, Annual Conference, Rockville MD, R Roy, G Rake.
8. November 2008: Joint Forces Pharmacy Seminar, Louisville KY, P Hoerner.
9. November 2008: Datix CCS Users Conference, London UK, G Rake.



Frank T. Flannery, MD, JD
Chair
Date of Appointment — 9 October 1990

DEPARTMENT OF LEGAL MEDICINE

MISSION

The mission of the Department of Legal Medicine includes consultation, education, and research on medicolegal, medical quality assurance, and risk management matters confronting the military, federal agencies, and the civilian sector. The Department's primary responsibility is to meet the informational needs of the Department of Defense (DoD) regarding medical negligence litigation and consequent remedial measures.

STAFF

Medical:

Frank T. Flannery, MD, JD
Richard L. Granville, MD, JD
William J. Oetgen, MD, MBA
James O. Scott, Jr., RN, BS
(A) Diane Cornish, RN, MSN

Legal:

(D) Jill E. Thach, JD

Administrative:

(D) Kevin Slaton, TSGT, USAF
Herman Furlow, Administrative Assistant
Daniel Wheatley, MS, Statistics Specialist
(D) Mary Ann Millett, Credentials Manager
Patricia Broseker, Administrative Assistant
Michael Orlowski, Legal Assistant

IMPACT

The Department continues to maintain and augment its critical roles in the areas of quality assurance and risk management by providing assistance to the Office of the Assistant Secretary of Defense for Health Affairs (OASD(HA)), the Tricare Management Activity (TMA), and the three military services. The major activities of the Department in 2008 were the continued collection and analysis of risk management data obtained from the Centralized Credentials Quality Assurance System (CCQAS), the analyses of MHS-wide system issues identified in DoD medical malpractice claims and participation in the Maximus External Peer Review Program of the Department of Defense in order to ensure compliance with the statement of work for this important quality management function.

Since its inception thirteen years ago, CCQAS continues to undergo modification and development. The Department continued its important role in this process as the DoD component analyzing medical malpractice cases, adverse privileging actions and disability cases within CCQAS. The analysis and reporting of this information possesses a high degree of military relevance and it improves the quality of medical care for our soldiers and their families and reduces patient harm as well as claim costs both in peacetime and during major deployments.

The Department continued the use of MAXIMUS case reviews for the purposes of analyzing, collating and reporting summary information to the DoD Risk Management Committee in order to identify system issues resulting in medical injury.

Another major impact accomplishment for the Department of Legal Medicine in 2008 was its

analysis and review of several hundred military paid medical malpractice cases. Detailed analysis of various issues including the standard of care, causation and system issues are important parts of this case review process. This effort was performed jointly with OASD(HA) and TMA. The identification of high risk medical practices and procedures, providing the opportunity to appropriately target quality assurance efforts, has great military relevance in improving the quality of medical care in the military health system, eliminating patient harm and lowering claim expenses.

The focused review efforts of the Department consisted of analysis on paid claims involving meningitis and breast cancer to determine how to better detect these diseases, improve patient care and lower claims costs associated with these diseases. The completed reviews involved the participation of both DoD Patient Safety personnel, the Department of Legal Medicine and consultants to the Surgeons General of the services. The completed studies and recommendations for improvement in the detection and treatment of these diseases were presented to TMA.

CONSULTATION

The Department of Legal Medicine has provided consultation in the areas of medical, legal, and credentials expertise for the DoD and other federal agencies. The Department continued to participate in and provide statistical input and analysis of DoD malpractice information related to quality improvement and risk management to a number of senior level DoD committees. A primary focus of the Department has been active involvement with the DoD Risk Management Committee chaired by OASD (HA). The Department of Legal Medicine assists OASD (HA) in the analysis of aggregate Triservice malpractice data provided by the services. Medical malpractice payment data from the Treasury Department is obtained by the Department of Legal Medicine and reported to that committee and the three services. This provides DoD with the ability to monitor and respond in an appropriate, timely manner to paid medical malpractice cases. The Department of Legal Medicine also participates in the TRICARE Clinical Quality Forum. Members of the Department periodically provide briefings regarding our activities at AFIP that include CCQAS data, malpractice case information, Treasury data, and Feres -barred (active duty) cases to this high level DoD committee. Finally the Department continues to provide ongoing assistance to further develop the Department of Defense CCQAS system by participation on various committees. The structure and content of the CCQAS database including the Risk Management, Disability and Adverse Actions modules, as well as the ad hoc and standard reporting features, have continued to be reviewed by the staff of the Department of Legal Medicine in 2008.

The Department of Legal Medicine continues an important role with the Maximus External Peer Review Program (Maximus). Paid medical malpractice cases, which meet the standard of care at the offices of the respective Surgeons General, have been reviewed by Maximus as an external entity under contract to DoD. The Department fulfills the important role of insuring that all 223 medical-legal reviews provided conform to the particulars of the statement of work regarding standard of care issues, causation, and system issues. The Department analyzes each case and provides feedback to OASD(HA) based on the review.

The Department of Legal Medicine continues to monitor DoD malpractice payments with the Department of the Treasury. The Department of Legal Medicine staff works closely with the Treasury Department to ensure continuation of this important function. DoD medical malpractice payments and trends as well as financial reports are collected from the Department of the Treasury and analyzed periodically by The Department of Legal Medicine in order to assist OASD (HA) in monitoring claims expenditures. These figures are of great importance and are used for comparison purposes with the larger database in the private sector. Our Treasury data reports provide timely notification of newly paid medical malpractice cases to the three Offices of the Surgeons General in order that they can meet their statutory requirements of reporting to the National Practitioner Data Bank in a timely fashion.

The Department of Legal Medicine continues participation on the CCQAS Functional Work Group in analyzing the Risk Management, Disability, and the Adverse Action modules of the Centralized Credentials Quality Assurance System. In 2008, the further refinement of these modules enhanced the usefulness of the reports which can be produced from these databases. Further development of these modules will be necessary on an ongoing basis.

The year also marked the termination of credential verification services to three federal services. The Department had performed its valuable credentials work through sharing agreements with the Navy Recruiting Command and the United States Coast Guard, and The

Federal Bureau of Prisons.

The Department of Legal Medicine maintains a repository at Forest Glen Annex of over 22,880 closed DoD medical malpractice cases. This DoD-wide repository has existed since 1990. In 2008, the Department accessioned and catalogued 405 closed Department of Defense medical malpractice cases including risk management closed case files. The Department of Legal Medicine, in conjunction with Department of Repository and Research Services at AFIP, continued work with a contractor to image medical malpractice claim files in the repository. To date, 7.7 million pages representing 38,639 folders have been imaged. Electronic imaging preserves the records from aging damage, saves space and offers a more rapid access to records as required by the services. Standard of care determinations in paid medical malpractice cases are available within the records. Additionally, through an ongoing collaborative relationship of the American Society of Anesthesiology and the Department of Legal Medicine, a reduction of both liability for anesthesia providers and care related harm to anesthesia patients have resulted from prior studies of closed cases.

DoD MEDICAL MALPRACTICE RECORDS RECEIVED AND ANALYZED:

<i>Cases</i>	<i>Completed</i>
Military	1,044
Army (513)	
Navy (248)	
Air Force (283)	
Civilian	0
Interdepartmental	3
Total	1,047

EDUCATION

The Department's risk management journal, Legal Medicine, has been continued and is now placed online for greater access to providers and to save printing costs. By completing a quiz, physicians earn five category I CME credits. The credit is provided free of charge to military and full-time federal physicians. Approximately 10,000 CME credits were awarded in calendar year 2008. A substantial portion of the credits were awarded to military and federal civilian physicians. Legal Medicine has proven military relevance, especially for remotely deployed personnel who are unable to attend conferences.

Faculty Appointments:

F Flannery, Clinical Assistant Professor, Georgetown University School of Medicine.

Presentations:

1. October, 2008: Georgetown University, School of Medicine, Washington, DC. "National Practitioner Data Bank," F Flannery.
2. March, 2008: Washington, DC, DoD Risk Management Committee, " Overview of Risk Management in CCQAS," R Granville.
3. March, 2008: Washington, DC, DoD Risk Management Committee, " Breast Cancer Review," R Granville.
4. July, 2008: Washington, DC, DoD Risk Management Committee, " System Issues Identified in Maximus Reviews," J Scott.
5. September, 2008: Washington, DC, DoD Risk Management Committee, " Meningitis Case Review," J Scott.
6. October, 2008: Washington, DC, DoD Risk Management Committee, " Characteristics of Malpractice Cases Involving Family Practice," R Granville.

Publications:

1. Weiss R. Techniques for Reducing Delays In the Diagnosis of Breast Cancer. *Legal Medicine*. 2008.
2. Wurzbach M. Risk, Trust, and Informed Consent in Health Care. *Legal Medicine*. 2008.
3. Waxman S, Waxman M. Medico-Legal Issues in Critical Care Medicine. *Legal Medicine*. 2008.
4. Westgate H, Issues in Off-Label Prescribing: Know Your Medicine and Be Your Patient's Doctor. *Legal Medicine*. 2008.

5. Flannery F, Recent Court Decisions. *Legal Medicine*. 2008.

PROFESSIONAL ACTIVITIES

Service as Peer Reviewers for Professional Journals:

1. FT Flannery, MD, JD, *Federal Practitioner*
2. RL Granville, MD, JD, *Military Medicine*



Kevin P. Monahan
Director

DIRECTORATE OF RESOURCES MANAGEMENT

MISSION

The staff of the Directorate of Resources Management is dedicated to advising and supporting the AFIP Director and staff through funds management, budget development and execution, fiscal program analysis, reimbursable program oversight, and travel systems administration. The staff provides these services by:

- Advising the AFIP Director, Executive Committee and AFIP staff members on financial administration and execution of AFIP's multiple funding streams
- Planning, coordinating and supervising all activities related to program/budget formulation, budget execution and funds control of AFIP resources
- Preparing, analyzing, briefing and distributing fund status and expense information to AFIP personnel
- Reviewing, analyzing and interpreting budget policies and language contained in Program Budget Decisions (PBD), Budget Circulars and appropriation/authorization acts
- Implementing, maintaining and providing guidance and training for all aspects of the Defense Travel System (DTS)
- Providing management and oversight of the Government Travel Card (GTC) program
- Establishing, managing and fiscally monitoring a substantial reimbursable program comprising numerous reimbursable agreements with other federal agencies

ORGANIZATION

The Directorate of Resources Management includes the Director's Office, the Financial Management Division (FMD) and the Business Office. The overall staff includes Budget Analysts, Management Analysts/Accountants, a Program Manager, and a Resource Management Officer.

STAFF (DIRECTOR'S OFFICE AND FMD)

Kevin P. Monahan, Director
Jeanette H. Barnes, Supervisory Budget Analyst
John R. Brock, Budget Analyst
Melvinn D. Chance, Budget Analyst
Reginald V. Wilkes, Budget Analyst



Mike F. Nola, PhD
Chief

AFIP BUSINESS OFFICE

MISSION

The staff of the Business Office is a team of committed professionals, who advise and assist the AFIP leadership in data collection, analysis and evaluation, financial management and accounting. The staff advises and supports the AFIP Director, Service Line Directors and the Executive Committee by:

- Advising the Executive Committee on key issues affecting the business aspects of pathology consultation, education and research within the AFIP
- Providing budgetary and financial counseling across the Institute
- Tracking financial performance of Institute programs
- Providing analytical and statistical reviews of programs and contracts, as well as business case analyses
- Managing the billing and collection activity for the Institute's civilian consultation cases
- Reviewing, overseeing and auditing the Institute's cost and revenue centers and MIPRs
- Managing the Institute's contracts and agreements, and the electronic file management system

ORGANIZATION

The Business Office is composed of a Program Manager, a Business Analyst and Management Analysts/Accountants who directly support the Directorate of Resources Management Director. The staff serves as advisors to the Service Line Directors as well as to the AFIP Director and the Executive Committee.

STAFF

Mike F. Nola, PhD, Chief
Francis R. Costa, Business Analyst/Accountant (VA supported)
Tonya L. Wilson, Management Analyst/Accountant
Rosalyn A. Payne, Management Analyst and Support Program Manager
Michele M. Block, Management Analyst



LCDR Garland H. Andrews, MSC, USN
Chief, Research Services

RESEARCH SERVICES DIVISION

MISSION

The Research Services Division supports the mission of the AFIP through the following activities:

1. Reviewing and processing protocols and educational projects submitted by AFIP staff for approval and funding.
2. Ensuring protocol administrative requirements are met and maintaining official protocol files.
3. Coordinating activities of the AFIP Research Committee, Institutional Review Board (IRB), and Institutional Animal Care and Use Committee (IACUC).
4. Performing annual protocol reviews, conducting semiannual laboratory animal facility inspections, drafting meeting minutes, preparing committee action documents and notices to investigators, and preparing required reports for various accrediting and oversight organizations.
5. Monitoring the status of conditionally approved projects and publishing a monthly status report of all active protocols within the Institute.

STAFF

LCDR Garland H. Andrews, MSC, USN—Chief, Research Services
Soundia Akerele—Asst Chief, Research Services
Marcia Pringle —Administrative Coordinator

ACTIVITIES

The year 2008 ended with a total of 179 active in-house projects, extramural grants, research contracts, and agreements. This is a 9 percent increase over the previous year. In 2008, Research Services conducted an internal review and audit of the procedures used to review and approve human use protocols and implemented a number of changes in the division to include (1) revamping all protocol forms related to human research; (2) digitizing all human use protocol records; and (3) creating new SOPs that document the processes used during the review and approval of human use protocols. The Division also implemented significant changes that affect the conduct and review of both human and animal use research to include (1) revamping the training and education requirements that IRB and IACUC committee members and investigators conducting human or animal use research are required to complete and (2) creating a new more user-friendly website for the Division so that researchers and committee members can easily find documents related to the review of human and animal use research. Finally, Research Services began discussions with a vendor to procure a database package that will be used to streamline the processing and review of protocols by the three committees managed by Research Services. Research Services manages the day-to-day functions of the following three committees at AFIP:

Research Committee: The Research Committee performs scientific review of both human use and animal use protocols. While all new animal use protocols submitted in 2008 were reviewed by the convened Research Committee, the majority of human use protocols were reviewed by expedited review, which does not require that the protocol be reviewed by the convened committee.

Institutional Animal Care and Use Committee (IACUC): The IACUC grants final approval of protocols involving animals. In 2008, the IACUC approved six new protocols and completed continuing reviews on 11 protocols. The committee performed two semi-annual inspections in March and September 2008. In July 2008, AFIP underwent an inspection by the Council on Accreditation of the Assessment and Accreditation of Laboratory Animal Care (AAALAC) Accreditation and was informed of its continued Full Accreditation in November 2008. Other noteworthy items include the completion of AFIP's Annual Report to Congress for FY08, which was completed in October 2008; submission of AFIP's animal welfare assurance to the Office of Laboratory Animal Welfare (OLAW) in November 2008 in order to renew the Institute's three year PHS Assurance; Completion of the U.S. Department of Agriculture (USDA) Annual Report for FY08 which was submitted on 24 Nov 2008; and completion of the PHS Annual Report for FY08 was completed on 13 Jan 2009.

Institutional Review Board (IRB): The IRB grants final approval of protocols that involve human subjects. In 2008, the IRB granted final approval to 30 new human use protocols and after review, determined that six new research protocols did not involve human subjects and thus did not require IRB approval. Continuing review was performed on a total of 96 studies in 2008, and a total of 22 research protocols were either closed or terminated during the course of 2008. The Army Human Research Protections Office (AHRPO) conducted two site visits in August and December 2008. Recommendations put forth by the auditors have been implemented.



Eric L. Peipelman, LtCol (S), USAF, MSC, FACHE
Director
Date of Appointment—xx2008

OFFICE OF INTEGRATION AND TRANSITION

STAFF:

Eric L. Peipelman, LtCol (S), USAF, MSC, FACHE—Director

IMPACT:

- Created in 2008, the Director of Transition and Integration focuses on all activities of AFIP's Tri-Service medical/research functions.
- Supervises and coordinates the planning and programming needed with other DoD, Federal, and/or State agencies for inherent assets of AFIP.
- Directs planning process for all BRAC activities such as creating financial, administrative, and logistical plans impacting over 800 staff members.
- Serves as Chairman for Communications Committees and BRAC Transition Planning Committee.
- Leads coordination of AFIP strategy and doctrine reflecting transition and integration activities.
- Provides AFIP emphasis and positions with cogent briefs to SASC, HASC, DoD, VA, and MHS.



SFC Chanda Sutton
First Sergeant, AFIP
Date of Appointment—28 November 2007

OFFICE OF THE FIRST SERGEANT

MISSION

The Office of the Command First Sergeant is the focal point for all matters concerning the enlisted force of the AFIP. Primarily charged with maintaining good order and discipline, this office advises the Director and Deputy Directors on the organizational climate of the Institute. The office monitors personnel morale, esprit de corps, and general well-being. It promotes enlisted career development, mentoring programs, and awards and recognition of outstanding personnel from all three service branches. The office acts as liaison between the Director, the enlisted force and key staff members, ensuring the Director's policies are known and understood by all personnel. The Command First Sergeant establishes rapport with other Commanders, First Sergeants and community leaders, and represents the command as needed. Air Force and Navy SNCOs work closely with the Command First Sergeant to assist service member with service-specific issues. They are also tasked to perform the duties of the Command First Sergeant in her absence.

STAFF

Wojtaszczyk, Robert D. SGM, USA, Senior Army Enlisted Member of AFIP
Correa L. Larry, HMC, USN, Senior Navy Enlisted Member of AFIP
Clements, Janet D. SMSgt, Senior Air Force Enlisted Member of AFIP
Gamble, Michael C. YN3(SCW), Assistant to the First Sergeant

ACCOMPLISHMENTS

1. Spearheaded the Armed Forces Institute of Pathology Moral Welfare and Recreation (AFIP – MWR) committee from "ground zero" composed of Servicemembers, GS civilian and contracted employees. The purpose of the MWR committee is to support deployed Servicemembers by providing care packages on a quarterly basis, recognizing Servicemembers pre- and post deployment at a ceremony in their honor. The committee worked with the National Museum of Health and Medicine to establish "open mic" during the afternoon for the Wounded Warrior Brigade. The AFIP -MWR planned, organized, directed and supported several events that improved morale and camaraderie within the organization, to include the annual organization day and AFIP's first Holiday Ball.

Deployments:

SGT Noble, Angela M. >>

SGT Noble was attached to the 43rd Medical Detachment Veterinary Services (VS) in support of TF 56th Multifunctional Medical Battalion (MMB) participating in Operation IRAQI FREEDOM. She was primarily stationed at Joint Base Balad (JBB) formerly known as LSA Anaconda during the deployment. SGT Noble also spent a little over two months stationed at FOB (Forward Operating Base) Diamondback in Mosul. During the deployment she also completed missions



at FOB Bucca, FOB Taji (2), FOB Caldwell, FOB Shield, FOB Gabe, and at Camp Slayer VBC, Baghdad.

2. The Office of the First Sergeant is actively engaged in military training and continues to assist Servicemembers in attending military courses that will enhance their skills and aide the command in maintaining the standards set forth.

Military Training attend by Service members:

HM1 Arabie, Chasity: Naval Command Career Counselor (CCC) course
SSG Taylor, Marvin: Advance Non Commissioned Officer Course (ANCOC)
YN2(SW) Mark, Odell: Advance Yeoman and Personnel (YN/PN) course
SFC Sutton, Chanda: U.S. Army First Sergeant (1SG) Course
SSgt Podsiadlo, Trisha: Unit Prevention Leader
SSgt Lacerda, Michele: Equal Opportunity Representative
SPC Hayward, Garland: Warrior Leader Course (WLC)

Certification:

SFC Sutton, Chanda: Certified Manager Animal Resources (CMAR) certification from the American Association for Laboratory Animal Science (AALAS).

SSG Wise, Connie: Medical Laboratory Technician (MLT) certification from American Medical Technologists

3. Formulated the building evacuation plan for WRAMC installation Mass Casualty (MASCAL) exercises ensuring that all AFIP personnel were accounted for.

4. Ensured all AFIP military maintained currency with military training requirements.

5. The Office worked with the institute's Combined Federal Campaign coordinator to have a record setting fundraiser, collecting in excess of \$31,000 in donations.

6. Enlisted staff enhanced the awards program to ensuring that Servicemembers were recognized and received their awards in a timely manner. Junior Enlisted Council and Top 4 held fund-raising events, morale building trips, and several gatherings to promote esprit de corps. They also provided savings bonds to recipients of the Service Member of the Quarter and Servicemember of the Year Awards.

7. Networking with MEDCOM CSM, NARMC CSM, WRAMC SGM, Brigade CSM, Andrews AFB Command CMSgt, and NNMC Command Master Chief has increased our ability to provide support to our Soldiers, Sailors, and Airmen.

8. Served on multiple standing committees at the installation and at the Institute, providing valued input regarding matters related to military issues.

DIRECTORATE OF ADVANCED PATHOLOGY



Sumitra Parekh
COL, MC, USA
Director, Advanced Pathology

GROUP 1—

Genitourinary Pathology (Nephropathology)
Gynecologic & Breast Pathology
Neuropathology & Ophthalmic Pathology

GROUP 2—

Dermatopathology
Soft Tissue Pathology
Oral & Maxillofacial Pathology
Endocrine & Otorhinolaryngic/Head-Neck Pathology

GROUP 3—

Hematopathology
Veterinary Pathology
Environmental & Infectious Diseases Pathology

GROUP 4—

Hepatic & Gastrointestinal Pathology
Pulmonary & Mediastinal Pathology
Radiologic Pathology
Cardiovascular Pathology

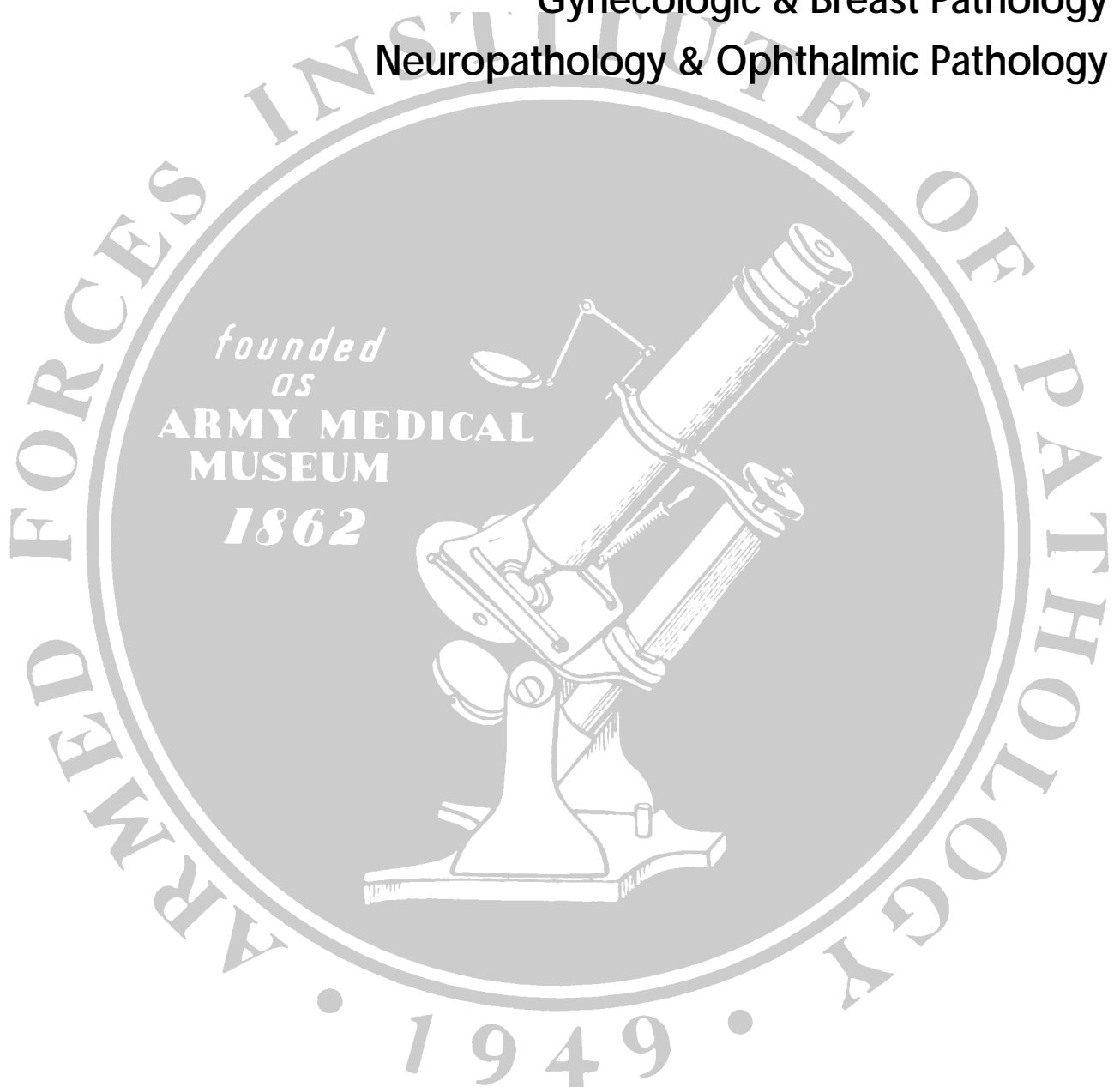
ADVANCED PATHOLOGY

GROUP 1

Genitourinary Pathology (Nephropathology)

Gynecologic & Breast Pathology

Neuropathology & Ophthalmic Pathology





Isabell A. Sesterhenn, MD
Chair
Date of Appointment — May 2004

DEPARTMENT OF GENITOURINARY PATHOLOGY AND NEPHROPATHOLOGY

STAFF

Medical:

Isabell A. Sesterhenn, MD
Joel H. Barton, MD
Michael D. Grinkemeyer, COL, MC, USAF
(D) Raj Shekar, COL, MC, USA
(A) Fabio Tavora, M.D.
Anandita Datta, MD, (Nephropathology)
Bungo Furusato, MD, Fellow (GU Pathology)

Scientific:

Frank A. Avallone, Research Biologist
Denise Young, Histopathology Technologist, ARP
Stacy Tamer, Histopathology Technologist

Administrative:

Renee Upshur-Tyree, Administrator
(A) Angelo Jiordano, Office Assistant

IMPACT:

The Department's relevance to the Institute can be seen in the work of the GU laboratory's provision of immunohistochemistry, immunofluorescence and in situ hybridization for this and for 10 other departments of the AFIP and for the Urology and Pathology Services of Walter Reed.

The Departments' relevance to the military in general is illustrated in our role as the pathology center for the Center for Prostate Disease Research – a tri-service data base and prostate specimen repository. This was mandated by Congress as authorized in Public Law 102-172. In this capacity our department is frequently requested to provide personal consultations to members of Congress and high ranking military officers.

The Departments' contributions to civilian medicine, as well as the military's entail not only our consultation work but our service as the WHO Collaboration Center for Histological Classification of Tumors of Urinary Tract and Male Sex Organs.

The GU Pathology Department collaborated with the Center of Prostate Disease Research on Gene expression profiling in formalin fixed paraffin embedded specimens. This methodology will greatly enhance the utilization of specimens representing malignant and nonmalignant diseases of the genitourinary tract. In conjunction with the CPDR the department is involved in extensive studies of the ERG gene and the TMPRSS-ERG gene fusion in prostate cancer. The GU Registries at the AFIP are in a unique position to contribute to molecular pathology with its vast repository of typical and unusual diseases.

The nephropathology division staff served as the primary pathologist in most of the cases, performing light, immunofluorescence and electron microscopy to render quality diagnosis. Most of the cases are received with request for performing light, electron and/or immunofluorescence microscopy essential in the final diagnosis. This includes time consuming research for clinical data and discussion with the clinicians or contributing pathologists to arrive at the final diagnosis. The staff uses immunohistochemistry (peroxidase method) when tissue for immunofluorescence microscopy is inadequate. Among the 245 human kidney biopsies, 203 (85%) were from federal institutions and 42 (15%) were from civilian contributors. The average case turnaround (TAT) was 7 days.

CONSULTATION:

During the year the number of consultations on difficult kidney tumors has increased. The number of consultation on bladder tumors in young patients is increasing. However, most of our surgical consultations were on prostate specimens, many of which are from active duty personnel in their forties and fifties.

Because of screening programs, we are seeing biopsies on totally asymptomatic patients who are found to have elevated PSA, a nodule on digital rectal examination, or an abnormal ultrasound. These biopsies, especially in a group of young patients from whom six or more biopsy specimens were taken, have led to problems in interpretation because we encounter changes not seen before. The major problem in these cases is whether the carcinoma represents latent cancer (prostatic cancer found in patients who die of other causes). The problem is compounded by the fact that many patients have been pretreated with a variety of new drugs. Most of our prostate biopsies are received from active members of the military and VA.

The overall number of consultations decreased slightly; 16% of these were civilians and 84% were military and VA cases. In 2008, 66% of the cases were submitted without a contributor's diagnosis or required a diagnostic change. A minor diagnostic change with respect to a pathological disagreement can have major impact on clinical management.

DIAGNOSTIC CONSULTATION

GENITOURINARY PATHOLOGY

<i>Cases</i>	<i>Completed</i>
Military	778
Army (459)	
Navy (130)	
Air Force (195)	
Federal	1276
VA (1284)	
Civilian	356
Interdepartmental	205
Total	2615

NEPHROPATHOLOGY

<i>Cases</i>	<i>Completed</i>
Military	116
Army (94)	
Navy (22)	
Federal	87
VA (87)	
Civilian	42
Interdepartmental	22
Total	267

The department provided telepathology consultation on 27 cases to national and international sites including military. Half of the telepathology cases are military.

Our department made no change in the contributor's diagnosis in 851 cases most of which

were for confirmation, a minor change in diagnosis in 1166 cases, and a major change in diagnosis in 56 cases and received 356 cases with no contributor diagnosis.

The Division of Nephropathology interpreted 245 renal biopsies including electron microscopy. 83% of these were military and VA and 17% were civilian cases. In 137 cases there was no diagnosis by the contributor. In 80 cases no change in the contributor's was made and in 23 cases a minor and in 4 cases a major changes were made in the diagnosis.

Quality Assurance:

We participated in 2 proficiency tests in immunohistochemistry and 2 tests in in-situ hybridization.

The genitourinary laboratory processed 111 total prostatectomies as whole mounts resulting in 1297 large and 640 small blocks. The department cut overall 2338 blocks with 9062 unstained sections and 5303 H&E slides. We performed 8511 immunohistochemical stains, 1039 in situ hybridization for HPV and interphase cytogenetics. We cut 7042 slides on 514 blocks for 4 departments and frozen projects resulting in 2938 immunofluorescence stains and 720 H&E stains. For the Center for Prostate Disease Research we processed 20 cases with 2 frozen blocks each resulting in 1600 slides.

Faculty Appointments:

IA Sesterhenn

1. Assistant Professor of Pathology, Uniformed Services University of the Health Sciences, Bethesda, MD
2. Member - United States Military Cancer Institute, Walter Reed Army Medical Center, Washington, DC, 2002-

Offices and Committee Membership in National and International Societies:

IA Sesterhenn:

1. Member of International Working Group on Bladder Cancer
2. Member of the German Prostate Cancer Consortium

EDUCATION

Department staff participated in 9 seminars, workshops, and lectures, and continued their affiliations with WRAMC, National Naval Medical Center and USUHS by lecturing to pathologists, residents, and fellows. Dates and titles are listed at the end of this report.

Educational Aides:

The computer laboratory at the Annual F.K. Mostofi Urologic Pathology and Radiologic Course includes 150 virtual slides on diseases of the genitourinary tract in addition to 2000 digital images. The course participants received discs with images with the most important entities of the GU tract. The handouts included photomicrographs.

Trainees:

Two Urology residents from WRAMC, who spent 2 months each in the department and additional time, as required, since they are involved in joint research project.

We had 4 federal employees, 8 non-federal trainee and 4 foreign national for a total 295 days

Two internet based courses (bladder and penis) are available on the web as are virtual slides on 150 entities of the genitourinary tract.

Faculty appointments:

1. February 2008: Washington, DC, Walter Reed Army Medical Center. 1 lecture.
2. March 2008: Washington, DC, Walter Reed Army Medical Center, two lectures
3. March 2008: Denver, CO, United States and Canadian Academy of Pathology. Mapping of TMPRSS2-ERG Fusions in the Context of Multi-Focal Prostate Cancer. B Furusato, CL Gao, L Ravindranath, Y Chen, J Cullen, DG McLeod, S Srivastava, G Petrovics, IA Sesterhenn.
4. March 2008: Denver, CO, United States and Canadian Academy of Pathology. Lymphatic Invasion in Pathologic Stage T3 Radical Prostatectomy Specimens as a Predictor of Biochemical Progression. KB Mwamukomda, B Furusato, IA, Sesterhenn, Y Chen, DG McLeod.
5. March 2008: Denver, CO, United States and Canadian Academy of Pathology. Elevated Secreted Protein, Acidic, and Rich in Cysteine (SPARC) mRNA Expression in Neoplastic Prostate Epithelial Cells Correlates with PSA Recurrence after Radical Prostatectomy. B Furusato, CA DeRosa, Y Chen, L Ravindranath, C Cook, J Cullen, DG McLeod, S Srivastava, G Petrovics, IA Sesterhenn.

6. May 2008: AFIP, 18th Anatomic Pathology Course (5 hrs)
7. May 2008: Orlando, FL, American Urological Association. A New Cell Line Expressing A Novel Type Of TMPRSS2-ERG Gene Fusion Derived From Primary Tumors Of Familial Prostate Cancer Patient. H Li, B Furusato, J Miki, C Sun, T Sreenath, A Dobi, G Petrovics, B Hukku, O Township, IA Sesterhenn, DG McLeod, S Srivastava, JS Rhim.
8. May 2008: Orlando, FL, American Urological Association. Comparative Analysis Of Gene Expression Signatures of 3-D Culture specific Genes And Epithelial Specific Genes From Clinically Localized Human Prostate Normal and Cancer Specimens. T Tsunoda, B Furusato, S Naito, S Ravulapalli, A Dobi, S Srivastava, J Inokuchi, DR Tyson, DK Ornstein, IA Sesterhenn.
9. May 2008: Orlando, FL, American Urological Association. Selective Transcriptional Down-Regulation Of The Wild Type TMPRSS2 Allele In Prostate Tumor Cells Harboring TMPRSS2-ERG Fusion. K Mwamukonda, Y Chen, L Ravindranath, B Furusato, J Cullen, IA Sesterhenn, DG McLeod, G Petrovics, S Srivastava.
10. May 2008: Orlando, FL, American Urological Association. Prostate Tumor-Stromal Gene Expression Signatures In Well and Poorly Differentiated Cancers. SM Shaheduzzaman, B Furusato, L Ravindranath, M Vahey, DG McLeod, I A Sesterhenn, G Petrovics, S Srivastava.
11. May 2008: Orlando, FL, American Urological Association. Relative Frequencies Of ETV1 and ERG Overexpression In Prostate Cancer. Y Hu, L Ravindranath, B Furusato, C Sun, A Dobi, IA Sesterhenn, DG McLeod, G Petrovics, S Srivastava.
12. July 2008: 5-day Annual Urological Pathology Course (58 hrs) Total Man-hours – 18,000 Presentations: (Military and/or Civilians)
13. October 2008: Athens, Greece, XXVIIth International Congress of The International Academy Of Pathology. Elevated Secreted Protein, Acidic, and Rich in Cysteine (SPARC) mRNA Expression in Neoplastic Prostate Epithelial Cells Correlates with PSA Recurrence after Radical Prostatectomy. CA DeRosa, B Furusato, Y Chen, L Ravindranath, C Cook, J Cullen, DG McLeod, S Srivastava, G Petrovics, IA Sesterhenn.
14. October 2008: Athens, Greece, XXVIIth International Congress of The International Academy Of Pathology. Association of TMPRSS2-ERG gene fusion status and prostate epithelial cell markers SLC45A3 and PSA in clinically localized prostate cancer: gene fusion may functionally dedifferentiate the cancer cell in the subset of prostate cancer. B Furusato, C Gao, G Petrovics, S Brassell, DG McLeod, S Srivastava, IA Sesterhenn.
15. October 2008: Athens, Greece, XXVIIth International Congress of The International Academy Of Pathology. Lymphatic invasion in pathologic stage T3 radical prostatectomy specimens as a predictor of biochemical progression. KB Mwamukomda, B Furusato, IA, Sesterhenn, Y Chen, DG McLeod.

RESEARCH

Journal Articles:

1. Furusato B, Rosner IL, Osborn D, Ali A, Srivastava S, Davis CJ, Sesterhenn IA, McLeod DG. Do patients with low volume prostate cancer have prostate specific antigen recurrence following radical prostatectomy? *J Clin Pathol*. 2008 Sep;61(9):1038-40. Epub 2008 Jun 13.
2. Furusato B, Gao CL, Ravindranath L, Chen Y, Cullen J, McLeod DG, Dobi A, Srivastava S, Petrovics G, Sesterhenn IA. Mapping of TMPRSS2-ERG fusions in the context of multi-focal prostate cancer. *Mod Pathol*. 2008 Feb;21(2):67-75. Epub 2007 Dec 7.
3. Furusato B, Shaheduzzaman S, Petrovics G, Dobi A, Seifert M, Ravindranath L, Nau ME, Werner T, Vahey M, McLeod DG, Srivastava S, Sesterhenn IA. Transcriptome analyses of benign and malignant prostate epithelial cells in formalin-fixed paraffin-embedded whole-mounted radical prostatectomy specimens. *Prostate Cancer Prostatic Dis*. 2008;11(2):194-7. Epub 2007 Sep 4.
4. Hu Y, Dobi A, Sreenath T, Cook C, Tadase AY, Ravindranath L, Cullen J, Furusato B, Chen Y, Thangapazham RL, Mohamed A, Sun C, Sesterhenn IA, McLeod DG, Petrovics G, Srivastava S. Delineation of TMPRSS2-ERG splice variants in prostate cancer. *Clin Cancer Res*. 2008 Aug 1;14(15):4719-25.
5. Kwee SA, Thibault GP, Stack RS, Coel MN, Furusato B, Sesterhenn IA. Use of step-section histopathology to evaluate 18F-fluorocholine PET sextant localization of prostate cancer. *Mol Imaging*. 2008 Jan-Feb;7(1):12-20.
6. Rosner IL, Ravindranath L, Furusato B, Chen Y, Gao C, Cullen J, Sesterhenn IA, McLeod DG, Srivastava S, Petrovics G. Higher expression of the androgen-regulated gene PSA/HK3 mRNA in prostate cancer tissues predicts biochemical recurrence-free survival. *Clin Cancer Res*. 2008 Feb 1;14(3):758-63.

7. Sun C, Dobi A, Mohamed A, Li H, Thangapazham RL, Furusato B, Shaheduzzaman S, Tan SH, Vaidyanathan G, Whitman E, Hawksworth DJ, Chen Y, Nau M, Patel V, Vahey M, Gutkind JS, Sreenath T, Petrovics G, Sesterhenn IA, McLeod DG, Srivastava S. TMPRSS2-ERG fusion, a common genomic alteration in prostate cancer activates C-MYC and abrogates prostate epithelial differentiation. *Oncogene*. 2008 Sep 11;27(40):5348-53. Epub 2008 Jun 9.
8. Weissbart SJ, Bianco FJ Jr, Sotelo T, Atalla MA, Sesterhenn IA, Jarrett TW. Glassy cell carcinoma of the urethra. *Urology*. 2009 Jan;73(1):60. Epub 2008 Aug 13.
9. Whitman EJ, Groskopf J, Ali A, Chen Y, Blase A, Furusato B, Petrovics G, Ibrahim M, Elsamanoudi S, Cullen J, Sesterhenn IA, Brassell S, Rittenhouse H, Srivastava S, McLeod DG. PCA3 score before radical prostatectomy predicts extracapsular extension and tumor volume. *J Urol*. 2008 Nov;180(5):1975-8; discussion 1978-9. Epub 2008 Sep 17.

Abstracts:

1. DeRosa CA, Furusato B, Chen Y, Ravindranath L, Cook C, Cullen J, McLeod DG, Srivastava S, Petrovics G, Sesterhenn IA. Elevated secreted protein, acidic, and rich in cysteine (SPARC) mRNA expression in neoplastic prostate epithelial cells correlates with PSA recurrence after radical prostatectomy. *Histopathology*. 2008, Vol. 53, Suppl 1, p275, abstr 630.
2. Furusato B, DeRosa CA, Chen Y, Ravindranath L, Cook C, Cullen J, McLeod DG, Srivastava S, Petrovics G, Sesterhenn IA. Elevated secreted protein, acidic, and rich in cysteine (SPARC) mRNA expression in neoplastic prostate epithelial cells correlates with PSA recurrence after radical prostatectomy. *Mod Pathol*. 2008, Volume 21, p157A, abstr. 712
3. Furusato B, Gao CL, Ravindranath L, Chen Y, Cullen J, McLeod DG, Srivastava S, Petrovics G, Sesterhenn IA. Mapping of TMPRSS2-ERG fusions in the context of multi-focal prostate cancer. *Mod Pathol*. 2008, Volume 21, p156A, abstr. 711.
4. Furusato B, Gao C, Petrovics G, Brassell S, McLeod DG, Srivastava S, Sesterhenn IA. Association of TMPRSS2-ERG gene fusion status and prostate epithelial cell markers SLC45A3 and PSA in clinically localized prostate cancer: gene fusion may functionally dedifferentiate the cancer cell in the subset of prostate cancer. *Histopathology*. 2008, Vol. 53, Suppl 1, p275, abstr 631.
5. Hu Y, Ravindranath L, Furusato B, Sun C, Dobi A, Sesterhenn IA, McLeod DG, Petrovics G, Srivastava S. Relative frequencies of ETV1 and ERG overexpression in prostate cancer. *J Urol*. 2008, Volume 179,(4), p461, abstr 1345.
6. Li H, Furusato B, Miki J, Sun C, Sreenath T, Dobi A, Petrovics G, Hukku B, Township O, Sesterhenn IA, McLeod DG, Srivastava S, Rhim JS. A new cell line expressing a novel type of TMPRSS2-ERG gene fusion derived from primary tumors of familial prostate cancer patient. *Journal of Urology*. 2008, Volume 179,(4), p391, abstr 1138.
7. Mwamukomda KB, Furusato B, Sesterhenn IA, Chen Y, McLeod DG. Lymphatic invasion in pathologic stage T3 radical prostatectomy specimens as a predictor of biochemical progression. *Mod Pathol*. 2008, Volume 21, p172A, abstr. 788
8. Mwamukomda KB, Furusato B, Sesterhenn IA, Chen Y, McLeod DG. Lymphatic invasion in pathologic stage T3 radical prostatectomy specimens as a predictor of biochemical progression. *Histopathology*. 2008, Vol. 53, Suppl 1, p282, abstr 646.
9. Mwamukonda K, Chen Y, Ravindranath L, Furusato B, Cullen J, Sesterhenn IA, McLeod DG, Petrovics G, Srivastava S. Selective transcriptional down-regulation of the wild type TMPRSS2 allele in prostate tumor cells harboring TMPRSS-2-ERG fusion. *J Urol*. 2008, Volume 179,(4), p455, abstr 1328.
10. Shaheduzzaman SM, Furusato B, Ravindranath L, Vahey M, McLeod DG, Sesterhenn IA, Petrovics G, Srivastava S. Prostate tumor-stromal gene expression signatures in well and poorly differentiated cancers. *J Urol*. 2008, Volume 179,(4), p455, abstr 1329.
11. Tsunoda T, Furusato B, Naito S, Ravulapalli S, Dobi A, Srivastava S, Inokuchi J, Tyson DR, Ornstein DK, Sesterhenn IA. Comparative analysis of gene expression signatures of 3-D culture specific genes and epithelial specific genes From clinically localized human prostate normal and cancer specimens. *J Urol*. 2008, Volume 179,(4), p424, abstr 1236.

Book Chapter:

Sesterhenn IA, Barton JH. Pathology of Prostate Cancer, *In:* JL Gulley, WL Dahut, J W Moul, H M Sandler, eds. *Prostate Cancer: A Clinical Guide*, Wolter Kluwer, Lippincott Williams & Wilkins 2008. Chapter 5.

Book:

RO Petersen, IA Sesterhenn, CJ Davis *Urologic Pathology*, 3rd Edition, Wolter Kluwer, Lippincott Williams & Wilkins 2008.

Syllabus:

Annual Genitourinary Pathology Course
Annual Anatomic Pathology Course Conference
Kyorin Univeristy, Tokyo, Japan

Projects:

Military Collaborators:

1. Center for Prostate Disease Research, Urology Services of Walter Reed Army Medical Center, Naval Medical Center, San Diego, Malcolm Grow Medical Center, Madigan Army Medical Center, Brook Army Medical Center and UHHS.
2. Characterization of Prostate Cancer Associated Tumor Suppressor Gene Locus on chromosome 6q16.1.
3. Characterization of PCGEM1, a novel prostate-specific gene overexpressed in prostate cancer.
4. A novel prostate-specific G-protein-coupled receptor gene, PSGR, is overexpressed in prostate cancer.
5. Preclinical evaluation of prostate-specific G-protein coupled receptor, PSGR, for developing prostate vaccine.
6. SAGE-Bioinformatics to Define Prostate Specific and Prostate Cancer Associated Quantitative Gene Expression Profiles.
7. Coordinated Gene Expression Patterns Define Endoplasmic Reticulum (ER) Stress Response Pathway as a Novel Component of Androgen Signaling in Prostate Cancer Cells.
8. CPDR Prostate Tissue LCM-based RNA/DNA Bank.
9. The Prostate Cancer Cell Center in CPDR.
10. Tripler Army Medical Center and Queens Hospital Hawaii.
11. Cancer localization in the prostate with F-18 Fluorocholine PET.
12. Walter Reed Pathology Department.
13. Lymphatic Invasion in Prostate Cancer.

Civilian Collaborators:

1. Division of Epidemiology and Genetics, NCI, "International Study on Familial Testicular Tumors."
2. Division of Cancer, Epidemiology and Genetics, NCI, "Comparison of Chinese and American prostatic carcinomas."
3. Tripler Army Medical Center and Queens Hospital Hawaii. Cancer localization in the prostate with F-18 Fluorocholine PET.
4. Intramural Collaborator (Hepatic and Gastrointestinal Pathology (Dr. Goodman).
5. "Evaluation of liver histology in a double-blind placebo controlled, randomized dose ranging study of recombinant human interleukin-10 (Tenovil) for treatment of hepatic fibrosis in patients with chronic hepatitis C who failed to respond to previous combination therapy (interferon alfa-2b plus ribavirin)," (UBIB).
6. "Morphometric analysis of distribution of fibrosis," (UBGI).
7. "Evaluation of liver histology in a phase II, double-blind, randomized, placebo controlled, multicenter study of the safety and anti-fibrotic efficacy of interferon-gamma 1b in patients with severe liver fibrosis or compensated fibrosis due to hepatitis C," (UBTQ).
8. The utility of gene-specific DNA hypermethylation within diagnostic sextant biopsies as an early detection molecular marker of prostate cancer. Cancer Prevention Studies Branch, Center for Cancer Research, NCI and WRAMC.

Funds Received:

\$135,000. – Henry M. Jackson Foundation for supplies and personnel (GU Laboratory and Fellow)

Departmental Projects:

1. Prostatic Carcinoma, Histopathological and Molecular Correlation
2. Studies of Various Renal Tumors in Adults (Wilms' tumor, certain epithelial tumors, multilocular cystic nephroma, and a group of renal hamartomas (angiomyolipoma, capsuloma, adenoleiomyofibroma)

3. Review of Testicular Tumors in Infants and Children
4. Studies of Carcinoma In Situ of the Bladder
5. Reclassification of the first 2000 bladder tumors in the Bladder Tumor Registry

PROFESSIONAL ACTIVITIES

Official Trips (funding agencies in parenthesis)

1. February 2008: International Academy of Pathology, German Division
2. February 2008: 44 Symposion Bonn, Germany
3. March 2008: United States and Canadian Academy of Pathology, Denver, Colorado
4. May 2008: American Urological Association, Orlando, Florida
5. August 2008: Kyorin University, Tokyo, Japan
6. October 2008: International Congress of the International Academy of Pathology, Athens, Greece
7. November 2008: The University of Texas Health Science Center, San Antonio, TX

Editorial Work:

IA Sesterhenn reviewed 4 manuscripts for the following professional journals:

1. *Journal of Urology*
2. *Human Pathology*
3. *Urology*



Tuyethoa Vinh, MD
Chair
Date of Appointment—2 July 2007

DEPARTMENT OF GYNECOLOGIC AND BREAST PATHOLOGY

STAFF

Medical

Tuyethoa N. Vinh, MD, Chair
Rubina Mattu, MD, Assistant Chair
Mona Tata, MD
Samuel H. Fistel, LTCOL, MC, USA

Scientific

Gary L. Bratthauer, MS, MT (ASCP)
Yan-Gao Man, MD

Administrative

Angeline Edmonds, Administrative Officer

IMPACT

The Department provides expert and timely consultation services for military, federal and civilian institutions around the World in the field of Gynecologic and Breast pathology. Our department is one of the busiest departments in the Institute with regards to the large volume of submitted consultation cases and telepathology cases. Since 2000, we had been consulted on the most number of telepathology cases compared to the other departments in the Institute, generating a report in less than 1/2 an hour. Despite the continued decline in manpower since 2005, we continue to fulfill our missions in maintaining an excellent consultation service with a consistently low turn-around time and praise from our contributors, by actively participating in Anatomic Pathology Updated Courses, and by generating numerous poster and abstracts presentations at USCAP, IAP, and National and International Research Society Meetings, as well as numerous publications. The Department had also provided extensive specialty training to numerous rotating pathology and surgical residents and fellows from various military and civilian institutions from US and overseas throughout the year.

CONSULTATION

The department provides expert opinion on a wide-variety of difficult, controversial, and rare breast and gynecologic pathology cases submitted for consultation from US military and VA hospitals, and civilian institutions around the world. The majority of cases are active surgical pathology cases, including telemedicine cases, with important patient management decisions pending the results of our interpretation. During the year, we have also reviewed a large volume of cases submitted to the Radiology Registry by their course participants. Since the late 90's, we had also been consulted on an exponentially increasing number of telepathology cases including quality assurance cases.

The department participated in the College of American Pathologists' Inter-Laboratory

Proficiency Comparison Program Exercises in Gynecologic and Non-Gynecologic Cytopathology. The department staff had also passed the Federally mandated Gynecologic Cytopathology Proficiency Test (with a passing score of 100%).

<i>Cases</i>	<i>Completed</i>
Military	1,603
Army (767)	
Navy (268)	
Air Force (568)	
Federal	240
VA (234)	
USPHS (6)	
Civilian	608
Interdepartmental	127
Telepathology	139
Total	2,717

EDUCATION

Courses:

1. 18th AFIP Anatomic Pathology Review Course, April 2008, Bethesda, MD:
 - Pathology of the Ovary.
 - Intraepithelial Lesions of the Breast.
 - Pathology of the Endometrium.
 - Papillary Neoplasms and Sclerosing Lesions of the Breast.
 - Cervical Lesions.
 - Placental and Trophoblastic Pathology.
 - Pathology of the Uterine Corpus.
 - 2 hours of interactive glass slides review and discussions.
2. Harvard University Breast Pathology Course: Current Concepts and Controversies in Breast Pathology. Boston, MA, June 2008.

Trainees:

The department provided two-week rotations for (2) national consortium fellows, one-month rotations for (2) ARP fellows and a three-month training for (1) staff pathologist from Pulmonary Department.

The department maintains and constantly updated a complete collection of glass slide study sets on a wide-variety of lesions in breast and gynecologic pathology for review by residents, visiting pathologist, and surgeons.

Presentations:

1. 2008: USCAP meeting:
 1. Vinh TN, Tata MY, Man YG. Co-expression of cytoplasmic e-cadherin and c-erbB2: implications for breast tumor invasion. *Mod Pathol.* 21 (supplement 1): 58A-255, 2008.
 2. Vinh TN, Tata MY, Man YG. Co-localization of Wilms' tumor 1 with maspin and p63 in mammary myoepithelial cells. *Mod Pathol.* 21 (supplement 1): 58A-256, 2008.
 3. Man YG, Liu AJ, Gardner WA. Normal appearing prostate acinar and duct clusters with malignant profiles. *Mod Pathol.* 21 (supplement 1): 169A-770, 2008.
 4. Man YG, Liu AJ, Gardner WA. Elevated tenascin expression in stroma near focally disrupted prostate basal cell layers: implications for tumor progression and invasion. *Mod Pathol.* 21 (supplement 1): 169A-771, 2008.
 5. Nelsen A, Man YG. HIV and Mast Cells in Human Tissue. *Mod Pathol.* 21 (supplement 1): 288A-1312, 2008.
2. April 5-9, 2008: Experimental Biology Meeting, San Diego, CA.
 1. Zhang XC, Sheng J, Firpo A, Man YG. Ethnicity and differences in mammary myoepithelial cell layers and inflammatory cell infiltration: Implications for differences in tumor development and behavior.

2. Rushing EJ, Liappis A, James D. Smirniotopoulos JD, Smith AB, Henry JM, Man YG, Nelson AM. Immune reconstitution syndrome of the brain Immune reconstitution inflammatory syndrome of the brain: case illustrations of a challenging entity.
3. June 26-29, 2008: Department of Defense Breast Cancer Research Program Meeting (DOD-BCRP) Baltimore, MD.
 1. Berg PE, Rhee J, Bivona L, Man YG, Baxter. Autocrine and paracrine effects of BP1, a homeotic protein, in breast cancer cells. Proceedings of Department of Defense Breast Cancer Research Program Meeting. P58-7, 391.
 2. Man YG. Direct physical continuation of normal appearing breast tissues with malignant breast lesions. DOD-BCRP: P71-13, 479.
 3. Man YG. Bad seeds produce bad crops: signs of a single step process of breast tumor progression. DOD-BCRP: P22-4, 150.
 4. Schedin P, O'Brien J, Lyons T, Bell P, Man YG, Wilson S, Lucia S, Borges V. Role of mammary gland involvement in promoting metastasis in pregnancy-associated breast cancer (PABC). DOD-BCRP: P69-2, 464.
4. December 10-14, 2008: 31th San Antonio Breast Cancer Symposium, San Antonio, TX.
 1. Man YG, Zhang ZY, Wang C, Gao L, Zhang, XC. CAPC expression correlates with breast tumor progression and invasion.
5. December 17, 2008: Dana-Farber Cancer Institute of Harvard University.

Committees (Intramural):

1. AFIP Credential Committee (TV).
2. AFIP Quality Assurance Committee (TV).
3. AFIP HIPPA Committee (MT).
4. AFIP Research Committee (RM).

RESEARCH

Research Grant:

Research grant # 30801176. Source of funding: The National Natural Science Foundation of China. Title: Impact of aromatase, estrogen, estrogen receptor, and dopamine receptor on secretion and proliferation of prolactinoma cells. Funding period: 11/30/08 - 11/29/11. Research performed exclusively in China. Total funding amount strictly controlled by the National Natural Science Foundation of China. Total funding amount: \$360,000.

Publications

Journal Articles:

1. Bratthauer GL, Wheeler DT, Tavassoli FA. A comment on tubulolobular carcinoma of the breast. Letter to the Editor. *Mod Pathol*. 2008;21(8):1058.
2. Bratthauer GL, Strauss BL, Barner R. Reversed expression of the JAK/STAT pathway related proteins prolactin receptor and STAT5a in normal and abnormal breast epithelial cells. *Breast Cancer: Basic and Clinical Research*. 2008;1:7-14.
3. Cavalli LR, Man YG, Schwartz A, Rone JD, Urban CA, Lima RS, Haddad BR, Berg AE. DNA amplification of the BP1 homeobox gene in breast cancer. *Cancer Gen Cytog*. 187(1):19-24, 2008.
4. Man YG. Bad seeds produce bad crops: a single step-process of breast carcinogenesis and Progression. *Bioscience Hypotheses*. 1:147-155, 2008.
5. Man YG and Gardner WA. Focal degeneration of basal cells and the resultant auto-immunoreactions: a novel mechanism for prostate tumor progression and invasion. *Medical Hypotheses*. 70: 387-408, 2008.
6. Man YG, Gardner WA. Bad seeds produce bad crops: a single step-process of prostate carcinogenesis and Progression. *Int J Biol Scien*. 246-258, 2008.
7. Rushing EJ, Olsen C, Man YG. Correlation of p63 immunoreactivity with tumor grade in meningiomas. *Int J Surg Path*. 16(1): 38-42, 2008.
8. Rushing EJ, Liappis A, James D. Smirniotopoulos JD, Smith AB, Henry JM, Man YG, Nelson AM. Immune reconstitution syndrome of the brain Immune reconstitution inflammatory syndrome of the brain: case illustrations of a challenging entity. *J Neuropathol Exp Neurol*. 67(8):819-827, 2008.
9. Schwartz AM, Man YG, Rezaei MK, Simmens S, Berg PE. BP1. A homeoprotein, is signifi-

- cantly expressed in prostate adenocarcinoma and is concordant with prostatic intraepithelial neoplasia (PIN). *Mod Pathol*. 2008 Oct 17 (Epub ahead of print).
10. Wang RH, Zheng Y, Kim HS, Xu X, Gao L, Luhasen T, Lee MH, Vassilopoulos A, Chen W, Garder K, Man YG, Huang MC, Finkel T, Deng CX. Interplay among BRCA1, SIRT1 and Survivin during BRCA1-associated tumorigenesis. *Mol Cell*. 32(1):11-20, 2008.
 11. Zhang XC, Hashemi SS, Yousefi M, Gao CL, Sheng J, Mason J, Man YG. Atypical expression of c-erbB2 in cell clusters overlying focally disrupted breast myoepithelial cell layers: a potential sign for increasing cell motility and invasion. *Int J Biol Sci*. 4:259-269, 2008.
 12. Zhao C, Barner R, Vinh TN, McManus K, Dabbs D, Vang R. SF-1 is a diagnostically useful immunohistochemical marker and comparable to other sex cord-stromal tumor markers for the differential diagnosis of ovarian sertoli cell tumor. *Intern J Gynecol Pathol*. 27(4):507-514, 2008.
 13. Zhao C, Vinh TN, McManus K, Dabbs D, Barner R, Vang R. Identification of the most sensitive and robust immunohistochemical markers in different categories of ovarian sex cord-stromal tumors. *Am J Surg Pathol*. Nov 19 [Epub ahead of print].

Abstracts:

1. Berg PE, Rhee J, Bivona L, Man YG, Baxter. Autocrine and paracrine effects of BP1, a homeotic protein, in breast cancer cells. Proceedings of Department of Defense Breast Cancer Research Program Meeting. P58-7, 391. Baltimore, MD, June 26-29, 2008.
2. Liu AJ, Man YG, Gardner WA. Prostatic ducts and acini with and without focal disruptions in the basal cell layer have a different gene expression profile: Implications for tumor progression and invasion. American Society for Cell Biology 2007 Annual Meeting, December 1-5, Washington DC.
3. Man YG. Direct physical continuation of normal appearing breast tissues with malignant breast lesions. Proceedings of Department of Defense Breast Cancer Research Program Meeting. P71-13, 479. Baltimore, MD, June 26-29, 2008.
4. Man YG. Bad seeds produce bad crops: signs of a single step process of breast tumor progression. Proceedings of Department of Defense Breast Cancer Research Program Meeting. P22-4, 150. Baltimore, MD, June 26-29, 2008.
5. Man YG, Liu AJ, Gardner WA. Normal appearing prostate acinar and duct clusters with malignant profiles. *Mod Pathol*. 21 (supplement 1): 169A-770, 2008.
6. Man YG, Liu AJ, Gardner WA. Elevated tenascin expression in stroma near focally disrupted prostate basal cell layers: implications for tumor progression and invasion. *Mod Pathol*. 21 (supplement 1): 169A-771, 2008.
7. Man YG, Zhang ZY, Wang C, Gao L, Zhang, XC. CAPC expression correlates with breast tumor progression and invasion. Accepted for presentation at 31st San Antonio Breast Cancer Symposium. San Antonio, TX. Dec 10-14, 2008.
8. Nelsen A, Man YG. HIV and Mast Cells in Human Tissue. *Mod Pathol*. 21 (supplement 1): 288A-1312, 2008.
9. Rushing EJ, Liappis A, James D. Smirniotopoulos JD, Smith AB, Henry JM, Man YG, Nelson AM. Immune reconstitution syndrome of the brain Immune reconstitution inflammatory syndrome of the brain: case illustrations of a challenging entity. Accepted for poster presentation at the 2008 Experimental Biology Meeting. April 5-9, 2008. San Diego, CA.
10. Schedin P, O'Brien J, Lyons T, Bell P, Man YG, Wilson S, Lucia S, Borges V. Role of mammary gland involvement in promoting metastasis in pregnancy-associated breast cancer (PABC). Proceedings of Department of Defense Breast Cancer Research Program Meeting. P69-2, 464. Baltimore, MD, June 26-29, 2008.
11. Vinh TN, Tata MY, Man YG. Co-expression of cytoplasmic e-cadherin and c-erbB2: implications for breast tumor invasion. *Mod Pathol*. 21 (supplement 1): 58A-255, 2008.
12. Vinh TN, Tata MY, Man YG. Co-localization of Wilms' tumor 1 with maspin and p63 in mammary myoepithelial cells. *Mod Pathol*. 21 (supplement 1): 58A-256, 2008.
13. Yousefi M, Hashemi, SS, Man YG. Improved double immunohistochemistry for differential diagnosis and early detection of skin tumor invasion. Accepted for presentation at the 2008 Annual Meeting of the American Society for Dermatology.
14. Yousefi M, Hashemi, SS, Man YG. Elevated infiltration of leukocytes and mast cells in melanoma tissues: Implications for tumor development and progression. Accepted for presentation at the 2008 Annual Meeting of the American Society for Dermatology.
15. Zhang XC, Sheng J, Firpo A, Man YG. Ethnicity and differences in mammary myoepithelial cell layers and inflammatory cell infiltration: Implications for differences in tumor

development and behavior. Accepted for oral presentation at the 2008 Experimental Biology Meeting. April 5-9, 2008. San Diego, CA.

16. Zhang XC, Wang QY, Gao L, Man YG. Correlated epithelial, myoepithelial, and stromal cell alterations at early stages of breast tumor invasion. Sixth Annual AACR International Conference: Frontiers in Cancer Prevention Research. December 5-8, 2007, Philadelphia, PA.

Projects:

1. UBXA: Lobular intraepithelial neoplasia (LIN) of the breast: an examination of the relationship to ductal disease and infiltrating carcinomas.
2. 05AN: An assessment of the difference in expression levels of the transcription factor STAT5a and its activator, the prolactin/prolactin receptor complex in benign and malignant breast disease.
3. UBZY: STAT5a expression in normal breast, DIN/LIN (in situ disease), and infiltrating breast carcinoma with comparison of expression in their secretory variants and cases with usual morphology.
4. UBSA: Mesotheliomas involving the ovary.
5. UB5G: Analysis of ovarian Sertoli cell tumors.
6. UBYI: Peutz-Jehger's syndrome.
7. UBWW: Comparison of novel myoepithelial cell immunohistochemical markers with more established immunomarkers in the human breast.
8. UBIF: New approaches for the early detection of breast cancer.

Collaborators:

Military:

LTC Ross Barner, MD, Department of Pathology, Walter Reed Army Medical Center.

Civilian:

1. Russell Vang, MD, Assistant professor, Department of Pathology, John Hopkins University.
2. Cheng Q. Zhao, MD, Magee-Women's Hospital, University of Pittsburgh Medical Center.
3. Michael D. Stamatakis, George Washington University, Washington DC.
4. Norman Bethune College of Medical Science and Jilin University, Changchun, China.

PROFESSIONAL ACTIVITIES:

Official Trips:

1. April 5-9, 2008: Experimental Biology Meeting, San Diego, CA. Invited plenary speaker (YM).
2. June 26-29, 2008: Department of Defense Breast Cancer Research Program Meeting. P22-4, 150, Baltimore, MD. Invited plenary speaker (YM).
3. December 17, 2008: The Dana-Farber Cancer Institute of Harvard University, Boston, MA. Invited speaker (YM).

Editorial work:

1. Associate Editor for *Cancer Detection and Prevention* (a 30-year international journal indexed by all major databases), having reviewed over 70 submitted manuscripts (YM).
2. Invited grant reviewer for UK Science Operations and Funding Directorate Cancer Research in 2008 (YM).
3. Invited grant reviewer for Israel Science Foundation in 2008 (YM).
4. Invited grant reviewer for Congressionally Directed Medical Research Programs in 2008 (YM).
5. Co-PI of a 3-year research grant (# 30801176) from the National Natural Science Foundation of China (YM).

Invited manuscript reviewing:

1. One manuscript submitted to *Cell Biology International* (YM).
2. Over 100 manuscripts submitted to *Cancer Detection and Prevention* (YM).

Other Academic activities:

Monthly Department Journal Club meetings throughout the year.



Elisabeth J. Rushing, COL, MC, USA
Chair
Date of Appointment — 7 March 2005

DEPARTMENT OF NEUROPATHOLOGY AND OPHTHALMIC PATHOLOGY

MISSION

The Department of Neuropathology and Ophthalmic Pathology supports the mission of the Armed Forces Institute of Pathology by providing diagnostic consultation and conducting research and educational programs related to diseases of the nervous, neuromuscular and visual systems.

ORGANIZATION

The department is organized into 2 divisions.

- 1. Division of Neuropathology – Elisabeth J. Rushing, COL, MC, USA
- 2. Division of Ophthalmic Pathology – Ahmed Hidayat, MD (deceased)

STAFF- NEUROPATHOLOGY

Medical:

- Elisabeth J. Rushing, COL, MC, USA, Chair
- Glenn D. Sandberg, COL, MC, USA, Staff Neuropathologist
- (D) Charles S. Specht, MD, Staff Neuropathologist
- Iren Horkayne-Szakaly, Staff Neuropathologist,
- (A) Vernon Armbrustmacher, MD, Staff Neuropathologist, ARP

Administrative:

- Erlinda T. Castro, Secretary, ARP
- Phyllis Hickey, ARP

DIAGNOSTIC CONSULTATION

Division of Neuropathology:

Cases	Completed
Military	95
Army (66)	
Navy (23)	
Air Force (06)	
Federal	99
VA (99)	
AFIP	3
Civilian	211
Interdepartmental	282
Total	687

*Division of Neuromuscular Pathology:**Cases* _____ *Completed*

Military	60
Army (23)	
Navy (32)	
Air Force (5)	
Federal	131
VA (102)	
USPHS (29)	
OFA (0)	
Civilian	276
Interdepartmental	5
<hr/> Total	<hr/> 472

Our Divisions of Neuropathology and Neuromuscular Pathology made no change in the contributor diagnosis in 237 cases; a minor change in diagnosis in 57 cases; and a major change in diagnosis in 1 case. We received 563 cases with no contributor diagnosis. Cases submitted to Neuropathology and Neuromuscular Pathology include surgical specimens, whole brains obtained at autopsy, skeletal muscle biopsy specimens from cases of medical disorders of skeletal muscle, peripheral nerve biopsy specimens, and skin biopsy specimens from suspected cases of storage disease. All cases accompanied by radiologic studies are reviewed in conference with the Neuroradiology staff of the Department of Radiologic Pathology. Whole brains are serially sectioned and studied according to standardized protocols for specific disorders. Skeletal muscle biopsy specimens are routinely examined using histochemical stains, enzyme histochemical methods, and in selected cases, with immunohistochemistry and electron microscopy. Peripheral nerve and skin biopsy material are evaluated with light and electron microscopy. The department also provides neuropathology review on selected cases from the Office of the Armed Forces Medical Examiner. Consultation is also provided for Veterans Affairs claim cases.

Impact:

The diagnostic expertise of the staff is constantly in demand for a variety of lectures at military and civilian hospitals including Walter Reed Army Medical Center (WRAMC), Madigan Army Medical Center (MAMC), National Naval Medical Center (NNMC), Uniformed Services University of Health Sciences (USUHS), University of Maryland Medical System, Baltimore, MD, Georgetown University Medical Center, Howard University Medical School and Washington Hospital Medical Center.

A close relationship has been established with the Department of Pathology and the Neurosurgery Service, WRAMC, for the interpretation of intraoperative consultations and tumor board cases.

This is the only military program fully accredited by the Accreditation Council for Graduate Medical Education in the military services for training of medical officers, including neurosurgeons and neurologists, in the field of neuropathology. Our trainees have consistently received high marks in exams leading to board certification, and many have achieved international recognition for their research endeavors in neuropathology. Military and civilian physicians in training in neurology, neurosurgery and pathology from medical centers nationwide and abroad regularly attend the semi-annual, intensive, three-month didactic course designed in support of preparation for specialty board certification.

Members of the staff participated in the ongoing NASA investigation of the space shuttle Columbia disaster.

EDUCATION***Clinicopathologic Conferences:***

Department staff participates in the following clinicopathologic conferences as part of our ongoing educational mission:

1. Neuropathology and Ophthalmic Pathology, AFIP: Daily Sign-out conference.
2. Department of Neuropathology, AFIP: Weekly Neuropathology/Neuroradiology conference.

3. Department of Neuropathology, AFIP: Bimonthly review of muscle biopsies with the staff of the Connective Tissue Disease Section, National Institutes of Health.
4. Department of Neuropathology, AFIP: Journal club, bi-monthly.

Courses:

Members of the staff participated as faculty members in 3 AFIP-sponsored general pathology courses and in 1 non-AFIP course.

1. February 18–22, 2008: 46th Annual Neuropathology Review, AFIP course, Denver, CO. 156 attendees
2. March 24–28, 2008: 18th Annual Anatomic Pathology. 113 attendees
3. August 11–22, 2008 Neuropathology Long Course, AFIP, Washington DC, 29 attendees
4. Neuroradiology Course, AFIP, Denver, CO. 140 attendees

Trainees:

The department is fully approved for residency training in neuropathology by the Residency Review Committee for Pathology of the Accreditation Council for Graduate Medical Education. In 2008 the department had had 10 civilians for a total of 177 training days in 2007.

Educational Aides:

Department Library

1. Syllabus of General Neuropathology: This collection consists of non-neoplastic lesions of the nervous system mounted on glass slides.
2. Syllabus of Neoplastic Lesions of the Central Nervous System: This collection consists of sections of tumors mounted on glass slides.
3. Histology: A Photographic Atlas: This system includes a videodisc that contains over 7,000 color photographs of cells, organs, and tissues, including the nervous system.
4. Radiologic Atlas of Brain Tumors: This is a collection of 1,040 cases of brain tumors on a videodisc.
5. Yakovlev-Haleem Collection: This collection includes 1,570 specimens of cerebrovascular disease, neurosurgery for behavioral diseases, congenital malformations, and experimental animals. Associated with the collection are a reference library and computer-training technology.
6. Lindenberg Collection: 15,000 specimens. Includes clinical and laboratory records, glass slides, and paraffin blocks documenting cases of head trauma from the Office of the Maryland State Medical Examiner. The late Dr. Richard Lindenberg founded the collection.
7. Rubinstein Collection: 4,000 specimens, which includes slides, paraffin blocks, photographs, and records documenting brain tumors. The collection was founded by the late Dr. Lucien J. Rubenstein and transferred to the AFIP from the University of Virginia in 1991.

RESEARCH:

Publications:

Members of the department contributed to the publication of 9 refereed journal articles and 8 abstracts. A syllabus for the 43rd Annual Neuropathology Review was published. Handouts for lectures in one AFIP-sponsored course were prepared.

Projects:

The divisions of Neuropathology and Neuromuscular Pathology have 12 officially approved research protocols:

1. Protein expression in brain tumors and muscle, 05AH, EJ Rushing.
2. Hypoxic signaling in ischemic and metabolic brain lesions, UB5S, EJ Rushing.
3. Meningiomas: Study of unusual variants, UBSV, EJ Rushing.
4. Exertional rhabdomyolysis: a genetic perspective, 06BC, EJ Rushing.
5. Survey of Wilm's Tumor 1 (WT1) expression in Glial neoplasms, 07CZ, EJ Rushing.
6. Imaging in CNS neurodegenerative disease, 06CF, EJ Rushing.
7. GABAergic system gene expression in pediatric brain tumors, 06BG, GD Sandberg.
8. A novel approach to transporting muscle biopsies, 06CJ, EJ Rushing.
9. Hemangiomas of the Spinal Cord, 07DB, EJ Rushing.
10. Clinicopathologic Features of Spinal Cord Lesions 06BP, EJ Rushing.

11. Immunopathology of Sympathetic Uveitis 06AX, EJ Rushing.
12. Pathophysiologic studies of human brain injuries 08AY, EJ Rushing.

OTHER ACCOMPLISHMENTS

Collaborators:

Military/Federal:

1. COL William Campbell, MD, Department of Neurology, Uniformed University of the Health Sciences, Bethesda, MD, and "Rhabdomyolysis Study Group"
2. Martha Quezado, MD, National Cancer Institute, National Institutes of Health, Bethesda, MD, Chromogenic In Situ Hybridization of Brain Tumors
3. MAJ Stephen S. Roberts, MD, Department of Pediatric Oncology, Uniformed Services University of the Health Sciences, GABAergic system gene expression in pediatric brain tumors
4. James Smirniotopoulos, MD, Department of Radiology, Uniformed University of the Health Sciences, Bethesda, MD, Neuroradiology of Pleomorphic xanthoastrocytoma
5. MAJ Alice Smith, MD, Department of Radiology, Uniformed University of the Health Sciences, Bethesda, MD, Neuroradiology of Pleomorphic xanthoastrocytoma

Civilian:

1. Deborah Blumenthal, MD, University of Utah, Department of Neurology, Hypermethylation status in Glioblastoma after 06-Benzylguanine treatment
2. David N. Louis, MD, Matthew P. Frosch, MD, Harvard University School of Medicine, Boston, MA, AFIP Central Nervous System Atlas on Non-tumor Pathology.
3. Mariarita Santi, MD, Children's Hospital National Medical Center, Washington D.C., Pediatric meningiomas, CISH and ependymoma and GBM

Interdepartmental:

1. Aaron Auerbach, MD, Department of Hematologic Pathology
2. Yan-Gao Man, MD, PhD, Department of Gynecologic and Breast Pathology
3. Ann Nelson, MD, Department of Environmental and Infectious Disease Sciences

Committees Intramural:

E. Rushing:

1. Registrar, Registry of Neuropathology, American Registry of Pathology
2. Member, Oversight Committee for Continuing Medical Education
3. Chair, Library Committee
4. Member, Graduate Medical Education Committee

GD Sandberg:

Member, Information Management Support Council.

Manuscripts Reviewed:

Members of the Department reviewed 10 manuscripts for the following professional journals:

1. *Journal of Neuropathology and Experimental Neurology* (3), EJ Rushing
2. *Archives of Pathology and Laboratory Medicine*, EJ Rushing
3. *Neuropathology and Applied Neurobiology* (2), EJ Rushing
4. *Acta Neuropathologica* (2), EJ Rushing
5. *Cancer*, EJ Rushing
6. *Journal of Cellular and Molecular Medicine* (2)

Offices/Committee Memberships in National or International Societies:

1. Brain Pathology Reviewer, Southwest Oncology Group (SWOG), San Antonio, TX, EJ Rushing.
2. Professional Affairs Committee, American Association of Neuropathologists, EJ Rushing.

Faculty Appointments:

1. Walter Reed Army Medical Center, Washington, DC, Consultant in Neuropathology, EJ Rushing.
2. Walter Reed Army Medical Center, Washington, DC, Consultant in Neuropathology, GD Sandberg.
3. Georgetown University, Washington, DC, Adjunct Professor, Department of Pathology, EJ Rushing.

4. Uniformed Services University of the Health Sciences, Bethesda, Maryland, Professor, Department of Neurology, EJ Rushing.

Official Trips:

1. February July 2008: Kaiserslautern, Germany, Expert witness for military trial, EJ Rushing.
2. July 2007: Tacoma, Washington, Madigan Army Medical Center, Department of Pathology, Neuropathology Training for residents and staff, EJ Rushing.
3. September 2008: Okinawa, Japan, Expert witness for military trial, EJ Rushing.

Continuing Education:

Members of the Department attended the following courses for training during 2008:

1. 46th Annual Neuropathology Review, AFIP course, Denver, CO (ARP)
2. Neuroradiology Course, AFIP, Denver, CO
3. Maryland Society of Pathologists Lecture Series, Baltimore, MD
4. AFIP Weekly Professional Staff Conferences, Washington, DC
5. Neuropathology Long Course , AFIP, Washington DC

PRESENTATIONS

1. January 2008: Washington DC, Washington Hospital Center, Department of Neurosurgery, "Surgical Neuropathology, Selected Cases," EJ Rushing.
2. January 2008: Uniformed University of the Health Sciences, Neurology Lecture to MSIV, EJ Rushing.
3. January 2008: Bethesda, MD, Uniformed University of the Health Sciences, Neurology Lecture to MSII, EJ Rushing.
4. January 2008: Washington, DC, Georgetown University Medical Center, Department of Pathology "Surgical neuropathology unknowns," EJ Rushing.
5. January 2008: Washington DC, Walter Reed Army Medical Center. Department of Pathology. EJ Rushing.
6. February 2008: Bethesda, MD, National Institutes of Health, National Institute of Arthritis and Musculoskeletal and Skin Diseases, Muscle biopsy conference, EJ Rushing.
7. February 2008: Washington DC, Grand Rounds, Department of Rheumatology, Georgetown University Medical Center, Inflammatory Myopathies, EJ Rushing.
8. March 2008: Washington, DC, Washington Hospital Center, Department of Neurosurgery, "Selected topics in surgical neuropathology II," EJ Rushing .
9. March 2008: AFIP Regularly Scheduled Conferences "The 2007 Revised World Health Organization (WHO) Classification of Tumors of the Central Nervous System: Newly Codified Entities and Histological variants." I Horkayne-Szakaly.
10. April 2008: Washington, DC, Georgetown University Medical Center, Department of Pathology, "Pituitary pathology," EJ Rushing
11. April 2008: Washington, DC, Georgetown University Medical Center, Department of Pathology, " Pathology residents: Neuropathology Quiz I," EJ Rushing.
12. April 2008: Bethesda, MD, National Institutes of Health, National Institute of Arthritis and Musculoskeletal and Skin Diseases, Muscle biopsy conference, EJ Rushing.
13. April 2008: Bethesda, MD, Uniformed Services University of the Health Sciences, Neurology Lecture to MSII.
14. May 2008: Washington, DC, Washington Hospital Center, Department of Neurosurgery, "Selected topics in surgical neuropathology III," EJ Rushing.
15. May 2008: Washington, DC, Georgetown Medical Center, Department of Pathology, "Pathology residents: Neuropathology Quiz II," EJ Rushing.
16. May, 2008: Washington, DC, AFIP Anatomic Pathology Course, "Astrocytomas," EJ Rushing.
17. May, 2008: Washington, DC, AFIP Anatomic Pathology Course, "Introduction to Neuropathology," I Horkayne-Szakaly.
18. June 2008: Washington, DC, Georgetown University Medical Center, Department of Pathology, "Unknown slide conference," EJ Rushing.
19. June 2008: Washington, DC, Georgetown University Medical Center, Department of Pathology, "Brain cutting conference," EJ Rushing.
20. June 2008: Washington, DC, Walter Reed Army Medical Center, Department of Pathology, "Embryonal Tumors," EJ Rushing.
21. June 2008: Washington, DC, Walter Reed Army Medical Center, Department of Pathol-

- ogy, "Muscle Pathology," EJ Rushing.
22. June 2008: Bethesda, MD, National Institutes of Health, National Institute of Arthritis and Musculoskeletal and Skin Diseases, Muscle biopsy conference, EJ Rushing.
 23. July 2008: Washington, DC, Georgetown University Medical Center, Department of Pathology, "Brain cutting conference," EJ Rushing.
 24. July 2008: Veterans Affairs Medical Center, Washington, DC, Department of Pathology, "Brain cutting conference," Armbrustmacher, I Horkayne-Szakaly.
 25. August 2008: Washington, DC, Georgetown University Medical Center, Department of Pathology, "Unknown slide conference," EJ Rushing.
 26. August 2008: Washington, DC, Walter Reed Army Medical Center, Department of Neurosurgery, Introduction to CNS Neoplasia.
 27. September 2008: Veterans Affairs Medical Center, Washington, DC, Department of Pathology, "Brain cutting conference," Armbrustmacher, I Horkayne-Szakaly.
 28. October 2008: Veterans Affairs Medical Center, Washington, DC, Department of Pathology, "Brain cutting conference," Armbrustmacher, I Horkayne-Szakaly.
 29. October 2008: Washington, DC, Washington Hospital Center, Department of Neurosurgery, "Selected topics in surgical neuropathology IV," EJ Rushing.
 30. November 2008: Washington, DC, Georgetown University Medical Center, Department of Pathology, "Unknown slide conference," EJ Rushing.
 31. December 2008: Washington, DC, Georgetown University Medical Center, Department of Pathology, "Pathology residents: Quiz," EJ Rushing.
 32. December 2008: Bethesda, MD, National Institutes of Health, National Institute of Arthritis and Musculoskeletal and Skin Diseases, Muscle biopsy conference, EJ Rushing.
 33. December 2008: Bethesda, MD, Uniformed Services University of the Health Sciences, Department of Anatomy, Neuroanatomy Lab for freshman medical students, EJ Rushing.
 34. December 2008: Bethesda, MD, Uniformed Services University of the Health Sciences, Department of Anatomy, Neuroanatomy Lab for freshman medical students, EJ Rushing.
 35. December 2008: New Orleans, LA, Louisiana State University Medical School Neuropathology Course, Embryonal Tumors, EJ Rushing.

PUBLICATIONS

Journal Articles:

1. Blumenthal DT, Rankin C, Eyre HJ, Livingston RB, Spence AM, Rushing EJ, Berger MS, Rivkin SE, Cohn AL, Petersdorf SH. External beam irradiation and cisplatin/BCNU followed by BCNU for the treatment of high grade gliomas: a phase II Southwest Oncology Group Trial. *Cancer*. 2008; 113:559-65.
2. Kadom N, Yaun A, Rushing EJ, Santi M. Chondromyxoid fibroma of frontal bone in a teenager. *Pediatric Radiology*. 2008 Sep 16. [Epub ahead of print].
3. Li J, Yin C, Okamoto H, Jaffe H, Oldfield EH, Zhuang Z, Vortmeyer AO, Rushing EJ. Proteomic characterization of primary CNS diffuse large B-cell lymphomas. *J Neurosurg*. 2008 65(8):826-33.
4. Makuria, AT, Rushing EJ, McGrail KM, Hartmann DP, Azumi N, Ozdemirli M. Atypical teratoid tumor (AT/RT) in adults: review of four cases. *J NeuroOncol*. 2008;88:321-30.
5. Rushing EJ, Liappis A, Smirniotopoulos JD, Smith AB, Henry JM, Man Y-G, Nelson AM. Immune reconstitution inflammatory syndrome of the brain: case illustrations of a challenging entity. *J Neuropathol Exp Neurol*. 2008 67:819-27.
6. Rushing EJ, Olsen C, Man Y-G. Correlation of p63 immunoreactivity with Tumor Grade in Meningiomas. *Int J Surg Pathol*. 2008;16:38-42.
7. Santi M, Bulas D, Fasano R, Ponsky T, Sandler A, Rushing EJ. Congenital ependymoblastoma arising in the sacrococcygeal soft tissue: Case study. *Clin Neuropathol*. 2008;27:78-82.
8. Scheithauer BW, Richter E, Belman B, Rushing EJ, Santi M. Diffuse ganglioneuromatosis and plexiform neurofibroma of the urinary bladder: report of a pediatric example and literature review. *Human Path*. 2008 Jul 23. [Epub ahead of print]
9. Simonyan K, Tovar-Moll F, Ostuni J, Hallet M, Kalasinsky VF, Lewin-Smith MR, Vortmeyer A, Rushing EJ, Ludlow C. Selective white matter changes in spasmodic dysphonia. *Brain*. 2008;131(Pt 2):447-59.
10. Smith AB, Smirniotopoulos JG, Rushing EJ. From the archives of the AFIP: central nervous system infections associated with human immunodeficiency virus infection: radiologic-pathologic correlation. *RadioGraphics*. 2008 28: 2033-2058.

11. Thorarinsdottir HK, Santi M, McCarter RM, Rushing EJ, Cornelison R, Jales A, MacDonald TJ. Protein expression of PDGFR correlates with malignant histology and PTEN with survival in childhood gliomas. *Clin Cancer Res*. 2008;14:3386-94.
12. Tihan T, Holmes E, Burger PC, Ozuysal S, Rushing EJ. The prognostic value of histologic grading of posterior fossa ependymomas in children: a Children's Oncology Group study and a review of prognostic factors. *Mod Pathol*. 2008;21:165-177.

Book Chapters:

1. Giannini C, Rushing EJ, Hainfellner JA. Haemangiopericytoma. *In:* Louis DN, Ohgaki H, Wiestler OD, Cavenee WK, eds: WHO Classification of Tumors of the Central Nervous System, Lyon, IARC 2007, 178-180.
2. Rushing EJ, Giangaspero F, Paulus W, Burger PC. Craniopharyngioma. *In:* Louis DN, Ohgaki H, Wiestler OD, Cavenee WK, eds: WHO Classification of Tumors of the Central Nervous System, Lyon, IARC 2007, 238-240.

Abstracts:

1. Horkay F, Horkayne-Szakaly I, Lin D, Dimitriadis EK, Silva C, Bassar PJ. Physicochemical interactions between the major macromolecular components of cartilage matrix. 235th ACS National Meeting, New Orleans, LA. April 6-10, 2008. Biological Chemistry Division. Abstracts.
2. Horkay F, Lin D, Horkayne-Szakaly I, Silva C, Dimitriadis EK, Bassar PJ. Structure and macromolecular organization of cartilage proteoglycans. 236th ACS National Meeting, Philadelphia, PA. August 17-21, 2008. Biotechnology Division. Abstracts.
3. Lin DC, Silva C, Dimitriadis EK, Horkayne-Szakaly I, Bassar PJ, Horkay F. Swelling and large strain indentation behavior of neonatal mouse cartilage. 52nd Annual Meeting of the Biophysical Society, February 2-6, 2008, Long Beach, CA. Abstracts.
4. Sandberg GD, Horkayne-Szakaly I, Rushing EJ. Freezing artifact in muscle biopsy specimens: a novel approach. *Experimental Biology*, San Diego, CA. April 509, 2008. Abstracts.

Other Publications:

1. Syllabus for 46th Annual Neuropathology review
2. Handouts for lectures in one AFIP-sponsored course
3. Syllabus for Louisiana State University Medical School Neuropathology Course

Goals:

Our goals include (1) diagnosing all consultation cases in accurate and timely manner by reducing the turnaround time; (2) maintaining the residency program by recruiting at least one new resident each year; (3) incorporating newly published scientific information into the short and long neuropathology courses; (4) identifying, investigating, and publishing significant research projects in collaboration with intramural and extramural sources and presenting the results at national and international meetings; and (5) serving as a neuromuscular reference laboratory for DoD and other government and civilian institutions.

DIVISION OF OPHTHALMIC PATHOLOGY

STAFF

Medical:

Elisabeth Rushing, COL, Chair
 Ahmed A. Hidayat, MD, Chief
 Emiko Furusato, MD, Research Scientist

Administrative:

Phyllis M. Hickey, Secretary

IMPACT

- The division provides consultation services to pathologists of the Armed Forces, VA, US Public Health Service, and to civilians. Complete gross and microscopic examinations are made on enucleated eyeballs for contributors from hospitals where facilities and trained personnel are not available for this specialized work. Diagnoses are provided to medical centers on microslides of interesting, unusual, and/or difficult cases.
- Division staff conduct research based on the wealth of accumulated case material in the Registry of Ophthalmic Pathology. Research is often conducted with outside scientists or in collaboration with personnel in other departments and divisions, involving special histochemical, immunological, and electron microscopic techniques and specialized equipment.
- The division administers graduate training in ophthalmic pathology to residents, medical students, and fellows, and organizes and conducts courses in ophthalmic pathology.

CONSULTATION

The division provided consultation services to military and VA hospitals. This amounted to "first echelon" support for most of these contributors. Very few governmental hospitals have either technical or professional personnel trained to prepare whole eyes for histopathologic study or to evaluate alterations in sectioned eyes. The division, therefore, served as the central laboratory for routine diagnostic work in ophthalmic pathology and provided consultation services as well. Similarly, there are many civilian communities throughout the world where no facilities are available for this work. Through the auspices of the Registry of Ophthalmic Pathology, sponsored by the American Academy of Ophthalmology, the division rendered consultation services to civilian contributors. Much of the routine work has been diverted to ophthalmic pathology laboratories at universities and other institutions. These laboratories now provide high-quality service and forward only the particularly difficult or unusually interesting cases to the AFIP, so that our division is receiving fewer but more difficult cases.

The scientific laboratory handled 122 cases by processing wet tissue, preparing histologic slides, and special stains. Whole eye specimens received as wet tissue were carefully grossed to identify the pathology.

<i>Cases</i>	<i>Completed</i>
Military	99
Federal (VA/PHS/OFA)	98
Civilian	149
<hr/> Total	<hr/> 346

EDUCATION

Courses:

In 2008, the division presented its annual course, "Ophthalmic Pathology for Ophthalmologists," at Hyatt Regency Bethesda. The division staffs present a daily clinicopathologic conference to residents in ophthalmology at NNMC, WRAMC, and local civilian programs.

Trainees:

Division facilities and personnel are in great demand for training in various phases of ophthalmic pathology and research.

Presentations:

1. April 2008: Verhoeff – Zimmerman Society for Ophthalmic Pathology, Miami, Florida, "Failed corneal graft after Descemet's Stripping with endothelial keratoplasty(DSEK)," E Furusato.
2. April 2008: Association for Research in Vision and Ophthalmology (ARVO) Annual Meeting, Fort Lauderdale, Florida, " Descemet's Stripping with endothelial keratoplasty: a light microscopic study of 10 cases," E Furusato, AA Hidayat. Ophthalmic Pathology, Armed Forces Institute of Pathology, Washington, DC.
3. September 18-20, 2008: Combined Meeting and Histopathology slide Seminar of the Eastern Ophthalmic Pathology Society and the Ophthalmic Alumni of the Armed Forces Institute of Pathology, Durham, North Carolina, "Ectopic orbital brain diagnosed twenty years after symptomatic presentation," E Furusato, LD Mihora, DEE Holck, M Katus, and EJ Rushing.

RESEARCH

Journal Articles:

1. Mansour AM, Al Dairy M, Hamam R, Hidayat AA. Chronic granulomatous disease presenting as retinal mass. *Cases J.* 2008 Oct 21;1(1):257.
2. Meghpara B, Nakamura H, Macsai M, Sugar J, Hidayat A, Yue BY, Edward DP. Keratectasia after laser in situ keratomileusis: a histopathologic and immunohistochemical study. *Arch Ophthalmol.* 2008 Dec;126(12):1655-63.
3. Wang M, Khurana RN, Parikh JG, Hidayat AA, Rao NA. Myxofibrosarcoma of the orbit: an underrecognized entity? Case report and review of the literature. *Ophthalmology.* 2008 Jul;115(7):1237-1240.e2. Epub 2007 Dec 21.

One article is in press.

Projects:

1. Inflammatory infiltrates in melanocytic lesions of the conjunctiva, E Furusato and AA Hidayat
2. Ocular leprosy, KJ Wroblewski and A Hidayat.
3. Tuberculosis of the eye, KJ Wroblewski and A Hidayat.

PROFESSIONAL ACTIVITIES

Editorial Boards:

Saudi Ophthalmology Journal, AA Hidayat.

ADVANCED PATHOLOGY

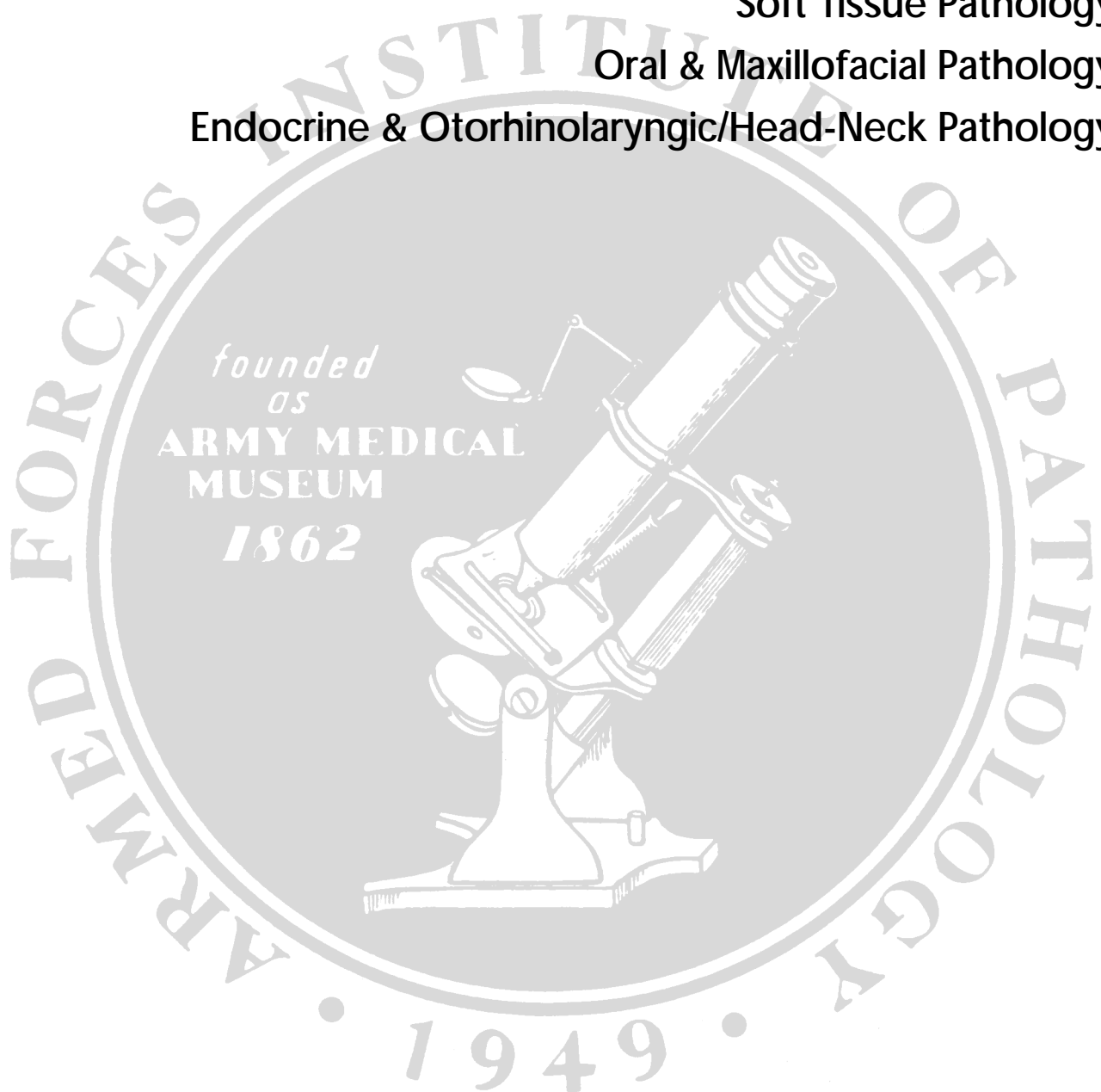
GROUP 2

Dermatopathology

Soft Tissue Pathology

Oral & Maxillofacial Pathology

Endocrine & Otorhinolaryngic/Head-Neck Pathology





George P. Lupton, MD
Chair
Date of Appointment — 1 July 1988

DEPARTMENT OF DERMATOPATHOLOGY

STAFF

Medical:

George P. Lupton, MD, Chair
Maria-Magdalena Tomaszewski, MD, Assistant Chair
Luke S. Chung, MD
Walter L. Rush, MD
James R. Hallman, MD

Administrative:

Clara Desane
Vashti A. Jefferson
Reneta Walker, HM1/USN/AD (until November 2008)

IMPACT

Our goals are:

- to provide expert and timely consultation on dermatopathology cases sent to us for review.
- to provide education in dermatopathology through lectures at local, regional and national meetings.
- to conduct research on pertinent topics in dermatopathology and publish results in respected national and international journals of dermatopathology, pathology and dermatology.
- to provide training to numerous rotating residents, both military and civilian, visiting pathologists, dermatologists and dermatopathologists.

CONSULTATION

The Department of Dermatopathology provides consultation services in the field of dermatopathology for military, federal and civilian institutions. Many accessioned federal and civilian consultations are difficult cases, such as melanocytic lesions, that could present high-risk medicolegal problems. The total number of reviewed cases was 6,816 including interdepartmental and telemedicine consultations. Military and federal institutions submitted 5,427 cases, which constituted 88% of cases submitted in 2008. We changed the patient's diagnosis from a benign lesion to cancer or from cancer to a benign lesion, in 144 cases, about 2% of cases, greatly changing the treatment outcome, leading to a potential saving of millions of dollars in medical malpractice suits. We received 2,571 cases, over 42% of cases, without a contributor diagnosis.

<i>Cases</i>	<i>Completed</i>
Military	2,295
Army (873)	
Navy (569)	
Air Force (853)	
VA	3,123
PHS	9
In house/OFA/FM	0
Civilian	640
Interdepartmental	669
Telemedicine	80
<hr/> Total	<hr/> 6,816

EDUCATION

Courses/seminars attended or taught by our staff:

1. Department staff made two presentations at the 18th Annual Anatomic Pathology Review Course (AFIP), Bethesda, MD.
2. Department staff presented teaching and diagnostic slide conferences for the AFIP staff (Weekly Professional Staff Conference) and the Quarterly AFIP/VA and Military Histopathology Quality Assessment Program.
3. Department staff attended four different training courses/meetings in 2008, provided at the following venues:
 - 18th Anatomic Pathology Review Course of the AFIP, Bethesda, MD.
 - The Harvard Medical School, Dermatopathology Update, Boston, MA.
 - 45th Annual Meeting of the American Society of Dermatopathology, San Francisco, CA.
 - 128th Annual Meeting, American Dermatological Association, Ashville, NC.

Trainees

In 2008, the department provided training for a total of 42 trainees, 16 federal, 24 non-federal and 2 foreign national physicians, fellows, and residents in dermatology, pathology and dermatopathology and medical students. Trainees spent an average of 19 days in our department, for a total of 798 training-days. They came from teaching facilities including Walter Reed Army Medical Center, National Naval Medical Center, Washington Hospital Center, Howard University Medical Center, Georgetown University Medical Center, George Washington University Medical Center, National Institutes of Health and other military teaching hospitals and civilian institutions across the country.

Faculty Appointments

1. Uniformed Services University of the Health Sciences, Bethesda, MD — GP Lupton
2. George Washington University School of Medicine, Washington, DC — GP Lupton
3. Johns Hopkins Medical School, Baltimore, MD — WL Rush

Presentations

1. March 2008: Bethesda, MD, AFIP 18th Annual Anatomic Pathology Course, "Pitfalls in the histopathologic diagnosis of pigmented lesions," GP Lupton.
2. March 2008: Bethesda, MD, AFIP 18th Annual Anatomic Pathology Course, "Adnexal neoplasia," LS Chung.
3. March 2008: Bethesda, MD, Washington, DC Dermatological Society, Guest Lecturer, The John A. Kenney, Jr Memorial Lecture "Problematic melanocytic lesions," GP Lupton.
4. April 2008: Washington, DC, George Washington University Medical Center, Pathology Department, "Primary cutaneous malignant lymphoma," M-M. Tomaszewski.
5. October 2008: Washington DC, AFIP/WRAMC, Video Teleconference Lecture Series, "Malignant eccrine neoplasms," GP Lupton.
6. October 2008: Graz, Austria, 29th Symposium of the International Society of Dermatopathology, "Cutaneous involvement in the lymphoepithelioid variant of peripheral T-cell lymphoma, unspecified (Lennert's lymphoma)," (poster presentation), TA Summers, WR Rush, NS Aguilera, GP Lupton.
7. October 2008: San Francisco, CA, 45th Annual Meeting of the American Society of Dermatopathology, "Desmoplastic malignant melanoma: a clinicopathologic study of 90

Cases," (poster presentation), V Papavero, JR Hallman, JC Fanburg-Smith.

RESEARCH

Publications

Royer MC, Rush WL, Lupton GP: Hepatocellular carcinoma presenting as a precocious cutaneous metastasis. *Am J Dermatopathology*. 2008; 30(1):77-80.

One article is in press.

Projects/Collaborations

1. Cohen GL, Lewin-Smith MR, Specht CS, Kalasinsky VF, Moroz AL, Hallman JR, Mullick FG. The Characteristics of malignant melanocytic neoplasms arising in a cohort of 1990-1991 U.S. Persian Gulf War Veterans. Departments of Environmental and Infectious Disease Science, Neuropathology, and Dermatopathology.
2. Fetsch JF, Hallman JR, Lupton GP, Miettinen M. Unusual vascular neoplasms of the skin and soft tissue. Departments of Soft Tissue Pathology and Dermatopathology.
3. Bhatia K, Modali R, Ayers L, Goedert J, Hallman JR, Nelson A. Development of real time PCR assay for the detection and qualification of Merkel cell carcinoma virus (MCV) in archived formalin-fixed paraffin-embedded samples of Merkel cell carcinoma. Department of Infectious Diseases Pathology and Department of Dermatopathology in collaboration with the National Institutes of Health.
4. Lewin-Smith MR, Kalasinsky VF, Mullick FG, Lupton GP, Hallman JR, Pearson ML (CDC). Diagnostic investigation and interpretation of unexplained dermatopathy. Division of Environmental and Chemical Pathology and Department of Dermatopathology in collaboration with the Centers for Disease Control.

PROFESSIONAL ACTIVITIES

Editorial work

American Journal of Dermatopathology (member of editorial board) — GP Lupton



Markku Miettinen, MD, PhD
Chair
Date of Appointment — 1 July 1996

DEPARTMENT OF SOFT TISSUE AND ORTHOPEDIC PATHOLOGY

STAFF

Medical:

John J. Fetsch, MD, Assistant Chair of Soft Tissue Pathology
Julie C. Fanburg-Smith, MD, Assistant Chair of Orthopedic Pathology
Chandra Prabha, Col, MC, USA
Sumitra L. Parekh, COL, MC, USA
Daniel Strum, COL, MC, USA

Scientific:

Jerzy P. Lasota, MD, PhD, Research Pathologist
Virginia Achstetter, HT (ASCP), Senior Laboratory Technologist

Administrative

David Dinges, Administrator
Charmaine Howard, Secretary

IMPACT

In 2008 the Department gave a large number of consultations to Military, VA, and civilian contributors and strengthened internal training program providing an improved Departmental study set, a unique, sought-after reference resource. Fifteen research articles on subjects such as gastrointestinal stromal tumors, fibromyxoid neoplasms, and vascular tumors reflected departmental clinicopathologic research activities. There was extensive research collaboration intramurally, nationally, and internationally. The Department provided in situ hybridization for gene rearrangement analysis for sarcoma typing, and KIT and PDGFRA mutation analyses for gastrointestinal stromal tumor therapy optimization, mainly for military service members and veterans. A course on soft tissue and orthopedic pathology was given to a wide military, Veterans Hospital, and civilian pathologist audience.

CONSULTATION

Consultations included cytology, needle and excisional biopsies, complex resections, and autopsy specimens of a wide variety of soft tissue, bone, and cardiovascular lesions from a broad range of anatomic sites. We examined tumors with a wide variety of histogenesis, including examples of inflammatory, degenerative, neoplastic, post-traumatic, and iatrogenic conditions. We also saw specimens from a wide variety of locations as interdepartmental consultations. The overall number of cases decreased from the last year but the average level of case difficulty continued to increase, probably due to more selective contributor submissions.

<i>Soft tissue cases</i>	<i>Completed</i>
Military	448
Army (216)	
Navy (143)	
Air Force (89)	
Federal	331
VA (329)	
Other federal (2)	
Civilian	619
Interdepartmental	1047
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Total	2445

<i>Orthopedic cases</i>	<i>Completed</i>
Military	124
Army (62)	
Navy (37)	
Air Force (25)	
Federal	120
VA (118)	
Other federal (2)	
Civilian	321
Interdepartmental	47
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Total	612

Military deployments:

At WRAMC, COL Prabha participated in diagnostic anatomic pathology activities, and Drs. Fanburg-Smith and Fetsch delivered lectures on specific types of soft tissue tumors for the residency program of Walter Reed Army Medical Center and National Naval Medical Center.

Administrative:

Drs. Fanburg-Smith, Lasota, Miettinen, and Strum participated as members in the Institutional Review Board for research activities.

EDUCATION

Courses:

Department staff participated as faculty in 2 AFIP courses.

Trainees:

The department hosted 2 formally registered military trainees for a total of 15 training days, and several others from regional military medical centers. There were 10 domestic civilian trainees for a total of 214 training days, and 5 foreign national trainees and visiting scholars for a total of 79 training days. Training consisted of review of departmental study sets, attendance at special training sessions, clinical conferences, and participation in departmental research projects. Departmental staff also participated in HPQA for the Department of Defense and VA facilities with submissions to the monthly and quarterly case programs, and to Brazil case review program.

RESEARCH AND EDUCATION

Presentations:

1. January 2008: Bethesda, Maryland, USUHS Medical School, "Non-neoplastic and neoplastic orthopaedic pathology, Fanburg-Smith JC.
2. February 2008: Washington, DC, AFIP Staff Conference. "Osteomyelitis," Strum D.
3. March 2008: Presented at USCAP, Denver, CO. Al-Daraji W, Childers ELB, Fanburg-Smith JC. Nodular fasciitis of the Salivary Gland. A clinicopathologic study of 14 cases. *Mod Pathol.* 2008; 21 (supplement 1): 230A-231A, #1055.
4. March 2008: Presented at USCAP, Denver, CO. Fanburg-Smith JC. Alveolar soft part

- sarcoma in the tongue of a child. Presented at Pediatric Pathology Evening Session, moderator Cheryl Coffin, MD.
5. March 2008: Presented at USCAP, Denver, CO. Fanburg-Smith JC, Auerbach A, Heffess CS. Retroperitoneal Paraganglioma: 70 Cases: Attempt to Histologically Predict Malignant Behavior. *Modern Pathol.* 2008;21 (supplement 1):107A #484.
 6. March 2008: Presented at USCAP, Denver, CO. Al-Daraji W, Childers ELB, Fanburg-Smith JC. Nodular fasciitis of the Salivary Gland. A clinicopathologic study of 14 cases. *Mod Pathol.* 2008; 21 (supplement 1): 230A-231A, #1055.
 7. March 2008: Presented at USCAP, Denver, CO. Fanburg-Smith JC. Alveolar soft part sarcoma in the tongue of a child. Presented at Pediatric Pathology Evening Session, moderator Cheryl Coffin, MD.
 8. March 2008: Presented at USCAP, Denver, CO. Fanburg-Smith JC, Auerbach A, Heffess CS. Retroperitoneal Paraganglioma: 70 Cases: Attempt to Histologically Predict Malignant Behavior. *Modern Pathol.* 2008;21 (supplement 1) :107A #484.
 9. March 2008: Denver, Colorado, Case presentation, USCAP, Pediatric Pathology Evening Session, Moderator Cheryl Coffin: "Solid alveolar soft part sarcoma in the tongue of a child," Fanburg-Smith JC.
 10. March 2008: Denver Colorado, USCAP Bone and Soft Tissue Platform, moderator, Fanburg-Smith JC.
 11. March 2008: Bethesda, Maryland, Hyatt Hotel, AFIP Anatomic Pathology course: several lectures, "Classification and grading of soft tissue tumors, Adipocytic neoplasms, Non-neoplastic and neoplastic orthopaedic pathology, Fanburg-Smith JC.
 12. March 2008: Denver, Colorado, US Canadian Academy of Pathology. "KIT codon 558 insertions are rare mutations occurring in intestinal GISTs and might indicate increased risk if malignant behavior in gastric tumors." Lasota J, Wardelmann E, Sciort R, Holden J, Iwanik K, Rys J, Steigen SE, Miettinen M. *Mod Pathol.* 2008;21:14A (abstract # 49).
 10. March 2008: Denver, Colorado, US Canadian Academy of Pathology. "Smooth muscle tumors of the inguinal canal in women are separable into two clinicopathologically distinct groups." *Mod Pathol.* 2008;21:17A (abstract # 63). Patil DT, Laskin WB, Fetsch JF, Miettinen M.
 11. March 2008: Denver, Colorado, US Canadian Academy of Pathology. "Retroperitoneal paraganglioma, 70 cases: Attempt to histologically predict malignant behavior." Fanburg-Smith JC, Auerbach A, Heffess CS. *Mod Pathol.* 2008;21:107A (abstract # 484).
 5. March 2008: Denver, Colorado, US Canadian Academy of Pathology. "True smooth muscle tumors of the jejunum and ileum: a clinicopathologic study of 32 cases." Miettinen M, Sobin LH, Lasota J. *Mod Pathol.* 2008;21:129-130A (abstract # 586).
 6. March 2008: Denver, Colorado, US Canadian Academy of Pathology. "Clinicopathological characterization of myxoid mesenchymal neoplasms of the uterus." Ananadan V, Moosavi C, Miettinen M. *Mod Pathol.* 2008;21:194-195A (abstract # 890).
 7. March 2008: Denver, Colorado, US Canadian Academy of Pathology. "Primary gallbladder sarcoma: 18 new cases" Al-Daraji W, Makhoul HR, Miettinen M, Montgomery EA, Goodman ZD, Fanburg-Smith JC. *Mod Pathol.* 2008;21:298A (abstract # 1360).
 8. March 2008: Denver, Colorado, US Canadian Academy of Pathology. "Use of a novel FISH assay as an adjunct to diagnosis of dermatofibrosarcoma protuberans and giant cell fibroblastoma." *Mod Pathol.* 2008;21:368-369A (abstract # 1678).
 9. March 2008: Bethesda, Maryland, AFIP 18th Annual Anatomic Pathology Update Course "Fibroblastic, myofibroblastic and 'fibrohistiocytic' tumors." Fetsch JF.
 10. March 2008: Bethesda, Maryland, AFIP 18th Annual Anatomic Pathology Update Course "Pleomorphic sarcomas." Fanburg-Smith, JC.
 11. March 2008: Bethesda, Maryland, AFIP 18th Annual Anatomic Pathology Update Course "Small round cell tumors." Lasota J.
 12. April, 2009: Presented in Boston, MA at USCAP meeting. Fanburg-Smith JC, Auerbach A, Marwaha JS, Wang Z, Rushing EJ. CNS and MSK mesenchymal chondrosarcoma: a malignant cartilage tumor with metaplastic hyaline cartilage that recapitulates growth plate endochondral ossification. *Modern Pathol.* 2009;22 (1): 13 A.
 13. April, 2009: Presented in Boston, MA at USCAP meeting. Lasota J, Marwaha J, Fanburg-Smith JC. CHOP is Not Rearranged in Epithelioid Pleomorphic Liposarcoma: Fluorescence in Situ Hybridization (FISH) Study on Four Cases. *Modern Pathol.* 2009; 22 (1) 17 A.
 14. April, 2009: Presented in Boston, MA at USCAP meeting. Liang Q, Wei MQ, Wang GH, Fanburg-Smith JC, Nelson A, Miettinen M, Foss RD. Quantitative analysis of activating alpha subunit of the G protein mutation by pyrosequencing for fibrous dysplasia. *Modern*

- Pathol.* 2009; 22 (1) 17 A.
15. April, 2009: Presented in Boston, MA at USCAP meeting. Keylock JB, Fanburg-Smith JC, Alaggio R, Barton JH, Sesterhenn IS. Renal angiomyolipoma in the first two decades of life: a clinicopathologic study of 44 cases. *Modern Pathol.* 2009; 22 (1) 175 A.
 16. April, 2009: Presented in Boston, MA at USCAP meeting. Klassen-Fischer MK, Auerbach A, Al-Daraji W, Fanburg-Smith JC. Soft Tissue Rosai Dorfman Disease: A large series with detection of SV40 antigen in select cases. *Modern Pathol.* 2009; 22 (1) 295 A.
 17. April, 2009: Presented in Boston, MA at USCAP meeting. Auerbach A, Fanburg-Smith JC, Rushing EJ. Focal Myositis. A clinicopathologic study of 115 cases. *Modern Pathol.* 2009; 22 (1) 327 A.
 18. April 2008: Ellicott City, Maryland, Maryland Society for Pathologists. "Fibrohistiocytic" tumors of the skin and subcutis and their differential diagnosis." Fetsch JF.
 19. April 2008: Ellicott City, Maryland, Maryland Society for Pathologists. "Fibroblastic" tumors of variable biologic potential." Miettinen M.
 20. April 2008: Ellicott City, Maryland, Maryland Pathology Society: "A 10-step approach to soft tissue tumors, classification, grading, and pearls," Fanburg-Smith, JC.
 21. April 2008: Bethesda, Maryland, 6th Annual Soft Tissue Tumors: A microscopy workshop (AFIP). "Synovial sarcoma and epithelioid sarcoma," Fetsch JF.
 22. April 2008: Bethesda, Maryland, National Institutes of Health, AFIP Soft Tissue Tumours Pathology Course. Lectures on "Nerve sheath tumors, Lipomatous tumors, Pseudosarcomatous tumors," Fanburg-Smith JC.
 23. April 2008: Bethesda, Maryland, 6th Annual Soft Tissue Tumors: A microscopy workshop (AFIP). "Vascular tumors," Fetsch JF.
 24. April 2008: Bethesda, Maryland, 6th Annual Soft Tissue Tumors: A microscopy workshop (AFIP). "Pseudosarcomatous lesions," Fanburg-Smith JC.
 25. April 2008: Bethesda, Maryland, 6th Annual Soft Tissue Tumors: A microscopy workshop (AFIP). "Lipomatous lesions," Fanburg-Smith JC.
 26. April 2008: Bethesda, Maryland, 6th Annual Soft Tissue Tumors: A microscopy workshop (AFIP). "Nerve sheath tumors," Fanburg-Smith JC.
 27. April 2008: Bethesda, Maryland, 6th Annual Soft Tissue Tumors: A microscopy workshop (AFIP). "Fibroblastic and myofibroblastic proliferations," Fetsch JF.
 28. April 2008: Bethesda, Maryland, 6th Annual Soft Tissue Tumors: A microscopy workshop (AFIP). "Dermatofibrosarcoma protuberans and its differential diagnosis," Fetsch JF.
 29. April 2008: Bethesda, Maryland, 6th Annual Soft Tissue Tumors: A microscopy workshop (AFIP). "Smooth muscle tumors," Miettinen M.
 30. April 2008: Bethesda, Maryland, 6th Annual Soft Tissue Tumors: A microscopy workshop (AFIP). "Rhabdomyosarcoma," Miettinen M.
 31. April 2008: Bethesda, Maryland, 6th Annual Soft Tissue Tumors: A microscopy workshop (AFIP). "Metastatic carcinoma, mesothelioma, and melanoma," Miettinen M.
 32. April 2008: Bethesda, Maryland, 6th Annual Soft Tissue Tumors: A microscopy workshop (AFIP). "Small round cell tumors and molecular diagnosis of soft tissue tumors," Lasota J.
 33. April 2008: Washington, DC, AFIP Staff Conference "Fibroblastic neoplasms of low malignant potential," Miettinen M.
 34. April 2008: Washington, DC, AFIP Staff Conference "Fluorescence in situ hybridization in soft tissue pathology," Lasota J.
 35. May 2008: Washington DC, Walter Reed Army Medical Center Pathology Department Lecture. "Orthopaedic pathology," Fanburg-Smith JC.
 36. May 2008: Bethesda, Maryland, Bethesda Naval Hospital, Pathology Department Lecture, "Orthopaedic pathology," Fanburg-Smith JC.
 37. September 2008: San Diego, California, Director, CAP Short Course: "Approach to soft tissue Tumours," Fanburg-Smith JC.
 38. September 2008: Oxford, England, 5th International Congress of Gastrointestinal Carcinogenesis. "Gastrointestinal stromal tumor – a new paradigm." Miettinen M.
 39. September 2008: Helsinki, Finland, International Conference on Pediatric Pathology. "Genetics of fibroblastic neoplasms of childhood." Miettinen M.
 40. October 2008: New Delhi, India, Invited speaker for Pathology Refresher Course, International Skeletal Society meeting: "Chordoma, histiocytic lesions, and vascular lesions of bone," Fanburg-Smith JC.
 41. November 2008: Grapevine, TX, Annual meeting of American Association of Molecular Pathologists: "Molecular pathology of gastrointestinal stromal tumor."

- Miettinen M.
42. December 2008: Washington DC, VTC Conference to military installations, Armed Forces Institute of Pathology and Walter Reed Army Medical Center, "Pleomorphic sarcoma," Fanburg-Smith JC.
 43. December 2008: Washington DC, George Washington University Department of Pathology, "Orthopaedic pathology," Fanburg-Smith JC.

RESEARCH

Journal Articles

1. Al-Daraji WI, Miettinen M. Superficial acral fibromyxoma: a clinicopathological analysis of 32 tumors including 4 in the heel. *J Cutan Pathol*. 2008 Nov;35(11):1020-6.
2. Gaumann A, Bode-Lesniewska B, Zimmermann DR, Fanburg-Smith JC, Kirkpatrick CJ, Hofstädter F, Woenckhaus M, Stoehr R, Obermann EC, Dietmaier W, Hartmann A. Exploration of the APC/beta-catenin (WNT) pathway and a histologic classification system for pulmonary artery intimal sarcoma: a study of 18 cases. *Virchows Arch*. 2008;453(5):473-84.
3. Hassell DS, Bancroft LW, Kransdorf MJ, Peterson JJ, Berquist TH, Murphey MD, Fanburg-Smith JC. Imaging appearance of diffuse neurofibroma. *AJR Am J Roentgenol*. 2008;190(3):582-8.
4. Hiatt KM, Nelson AM, Lichy JH, Fanburg-Smith JC. Classic Kaposi Sarcoma in the United States over the last two decades: a clinicopathologic and molecular study of 438 non-HIV-related Kaposi Sarcoma patients with comparison to HIV-related Kaposi Sarcoma. *Mod Pathol*. 2008;21(5):572-82.
5. Lasota J, Miettinen M. Clinical significance of oncogenic KIT and PDGFRA mutations in gastrointestinal stromal tumours. *Histopathology*. 2008 Sep;53(3):245-66.
6. Lasota J, Corless CL, Heinrich MC, Debiec-Rychter M, Sciort R, Wardelmann E, Merkelbach-Bruse S, Schildhaus HU, Steigen SE, Stachura J, Wozniak A, Antonescu C, Daum O, Martin J, Del Muro JG, Miettinen M. Clinicopathologic profile of gastrointestinal stromal tumors (GISTs) with primary KIT exon 13 or exon 17 mutations: a multicenter study on 54 cases. *Mod Pathol*. 2008 Apr;21(4):476-84.
7. Lasota J, Kuban W, Wardelmann E, Debiec-Rychter M, Merkelbach-Bruse S, Sciort R, Rys J, Steigen SE, Iwanik K, Holden JA, Jerzak Vel Dobosz A, Schildhaus HU, Miettinen M. KIT codon 558 insertions in gastrointestinal stromal tumors. Analysis of 17 rare KIT mutants. *Hum Pathol*. 2008 Dec;39(12):1728-36.
8. Makhoulf HR, Ahrens W, Agarwal B, Dow N, Marshalleck JJ, Lee EL, Dotto JE, Hui P, Sobin LH, Oliveira A, Miettinen M. Synovial sarcoma of the stomach: a clinicopathologic, immunohistochemical, and molecular genetic study of 10 cases. *Am J Surg Pathol*. 2008 Feb;32(2):275-81.
9. Miettinen M, Kraszczyńska E, Sobin LH, Lasota J. A nonrandom association between gastrointestinal stromal tumors and myeloid leukemia. *Cancer*. 2008 Feb 1;112(3):645-9.
10. Miettinen M, Finnell V, Fetsch JF. Ossifying fibromyxoid tumor of soft parts: a clinicopathologic and immunohistochemical study of 104 cases with long-term follow-up and a critical review of the literature. *Am J Surg Pathol*. 2008 Jul;32(7):996-1005.
11. Moosavi CA, Al-Nahar LA, Murphey MD, Fanburg-Smith JC. Fibroosseous pseudotumor of the digit: a clinicopathologic study of 43 new cases. *Ann Diagn Pathol*. 2008;12(1):21-8.
12. Murphey MD, Rhee JH, Lewis RB, Fanburg-Smith JC, Flemming DJ, Walker EA. Pigmented villonodular synovitis: radiologic-pathologic correlation. *Radiographics*. 2008;28(5):1493-518.
13. Nieminen J, Sahlman J, Hirvonen T, Lapveteläinen T, Miettinen M, Arnala I, Malluche HH, Helminen HJ. Disturbed synthesis of type II collagen interferes with rate of bone formation and growth and increases bone resorption in transgenic mice. *Calcif Tissue Int*. 2008 Mar;82(3):229-37.
14. Paul SR, Hurford MT, Miettinen MM, Aronoff SC, Delvecchio M, Grewal H, Tuluc M. Polymorphous hemangioendothelioma in a child with acquired immunodeficiency syndrome (AIDS). *Pediatr Blood Cancer*. 2008 Mar;50(3):663-5.
15. Tavora F, Miettinen M, Fanburg-Smith J, Franks TJ, Burke A. Pulmonary artery sarcoma: a histologic and follow-up study with emphasis on a subset of low-grade myofibroblastic sarcomas with a good long-term follow-up. *Am J Surg Pathol*. 2008 Dec;32(12):1751-61

Abstracts:

1. March 2008: Denver, Colorado, US Canadian Academy of Pathology. "KIT codon 558

- insertions are rare mutations occurring in intestinal GISTs and might indicate increased risk if malignant behavior in gastric tumors." Lasota J, Wardelmann E, Sciort R, Holden J, Iwanik K, Rys J, Steigen SE, Miettinen M. *Mod Pathol*. 2008;21:14A (abstract # 49).
2. March 2008: Denver, Colorado, US Canadian Academy of Pathology. "Smooth muscle tumors of the inguinal canal in women are separable into two clinicopathologically distinct groups." *Mod Pathol*. 2008;21:17A (abstract # 63). Patil DT, Laskin WB, Fetsch JF, Miettinen M.
 3. March 2008: Denver, Colorado, US Canadian Academy of Pathology. "Retroperitoneal paraganglioma, 70 cases: Attempt to histologically predict malignant behavior." Fanburg-Smith JC, Auerbach A, Heffess CS. *Mod Pathol*. 2008;21:107A (abstract # 484).
 4. March 2008: Denver, Colorado, US Canadian Academy of Pathology. "True smooth muscle tumors of the jejunum and ileum: a clinicopathologic study of 32 cases." Miettinen M, Sobin LH, Lasota J. *Mod Pathol*. 2008;21:129-130A (abstract # 586).
 5. March 2008: Denver, Colorado, US Canadian Academy of Pathology. "Clinicopathological characterization of myxoid mesenchymal neoplasms of the uterus." Ananadan V, Moosavi C, Miettinen M. *Mod Pathol*. 2008;21:194-195A (abstract # 890).
 6. March 2008: Denver, Colorado, US Canadian Academy of Pathology. "Primary gallbladder sarcoma: 18 new cases" Al-Daraji W, Makhoul HR, Miettinen M, Montgomery EA, Goodman ZD, Fanburg-Smith JC. *Mod Pathol*. 2008;21:298A (abstract # 1360).
 7. March 2008: Denver, Colorado, US Canadian Academy of Pathology. "Use of a novel FISH assay as an adjunct to diagnosis of dermatofibrosarcoma protuberans and giant cell fibroblastoma." *Mod Pathol*. 2008;21:368-369A (abstract # 1678).

Projects:

1. Classification of unusual vascular tumors.
2. Peripheral and visceral smooth muscle and stromal tumors
3. Fibromyxoid neoplasms.
4. Fibrosarcomatous transformation of dermatofibrosarcoma protuberans.
5. Vascular tumors of bone
6. Fibromyxoid neoplasms of soft tissue and bone
7. Epithelial tumors of soft tissue.
8. Molecular pathologic analysis of soft tissue tumors.
9. Triton tumors.
10. Malignant peripheral nerve sheath tumors arising in neurofibroma.
11. Pathology of fibromas.

Collaborators:

Civilian:

1. Christopher Corless, Oregon Health Sciences University, Portland, OR
2. Maria Debiec-Rychter, Catholic University, Leuven, Belgium
3. Andrea Deyrup, Emory University, Atlanta, GA
4. Sonja Erikson-Steigen, University of Tromsø, Norway
5. Zoran Gatalica, Creighton University, Omaha, Neb
6. Matthew Hurford, Temple University, Philadelphia
7. Dhanpat Jain, Yale University, New Haven
8. William B. Laskin, Northeastern University, Chicago, Ill (Visiting Scientist)
9. Janusz Limon, Medical Academy of Gdansk, Poland
10. Timothy O'Leary, Department of Veterans Affairs
11. Michal Michal, Faculty Hospital, Pilsen, Czech Republic
12. Fabrizio Remotti, College of Physicians and Surgeons, New York
13. Janusz Rys, Oncology Hospital, Krakow, Poland
14. Maarit Sarlomo-Rikala, University of Helsinki, Finland
15. Brian Rubin, University of Washington, Seattle
16. Jerzy Stachura, Jagellonian University, Krakow, Poland
17. Eva Wardelmann, University of Bonn, Germany
18. Bartosz Wasag, Medical Academy of Gdansk, Poland
19. Sharon W. Weiss, Emory University, Atlanta, GA

Interdepartmental:

1. Department of Dermatopathology

2. Department of Gastrointestinal Pathology
3. Department of Genitourinary Pathology
4. Department of Gynecological and Breast Pathology
5. Department of Endocrine Pathology
6. Department of Hematologic and Lymphatic Pathology
7. Department of Hepatic Pathology
8. Department of Molecular Pathology
9. Department of Neuropathology
10. Department of Pulmonary and Mediastinal Pathology
11. Department of Radiologic Pathology
12. Department of Veterinary Pathology

PROFESSIONAL ACTIVITIES

Editorial:

Department members reviewed 51 manuscripts for peer-reviewed scientific journals during 2008 and held the following editorial board memberships, other significant reviewer positions, or editorships:

1. *American Journal of Surgical Pathology* (M Miettinen)
2. *Applied Immunohistochemistry and Molecular Morphology* (M Miettinen)
3. *Annals of Diagnostic Pathology* (JC Fanburg-Smith, M Miettinen)
4. *Archives of Pathology*, Section Editors for Soft Tissue (JF Fetsch, M Miettinen)
5. *Human Pathology* (J Lasota, M Miettinen)
6. *Virchows Archiv* (M Miettinen)
7. CAP Abstract Reviewer (JF Fetsch, (JC Fanburg-Smith))
8. USCAP Abstract Reviewer (JC Fanburg-Smith)
9. Foundation for Polish Science grant reviewer (J Lasota)
10. *Cancer*, editorial reviewer since 1995 (JC Fanburg-Smith)
11. *Modern Pathology*, editorial reviewer since 2002 (JC Fanburg-Smith)
12. *Lung Cancer*, editorial reviewer since 2003 (JC Fanburg-Smith)
13. *J Clin Pathol*, editorial reviewer since 2003 (JC Fanburg-Smith)
14. *Pediatric Blood & Cancer*, editorial reviewer since 2004 (JC Fanburg-Smith)
15. *Genes, Chromosomes, Cancer*, editorial reviewer since 2005 (JC Fanburg-Smith)
16. *Archives of Pathology & Laboratory Medicine*, editorial reviewer since 2005 (JC Fanburg-Smith)
17. *J Clin Oncol*, editorial reviewer since 2005 (JC Fanburg-Smith)
18. *Ophthalmic Plastic and Reconstructive Surgery*, editorial reviewer since 2005 (JC Fanburg-Smith)
19. American Association for Cancer Research, editorial reviewer since 2006 (JC Fanburg-Smith)
20. *Head and Neck Pathology*, editorial reviewer since 2007 (JC Fanburg-Smith)

Academic promotion review

Two academic promotion reviews were completed, one for Jefferson Medical College of Thomas Jefferson University, Philadelphia, PA, and another for Temple University, Philadelphia, PA (M Miettinen).



Robert D. Foss, CAPT, DC, USN
Chair
Date of Appointment — 16 September 2004

DEPARTMENT OF ORAL AND MAXILLOFACIAL PATHOLOGY

MISSION

The Department of Oral and Maxillofacial Pathology provides expert diagnostic consultation, education and research in diseases of the oral mucosal and soft tissues, the jaws, and the major and minor salivary glands. The department also supports the Office of the Armed Forces Medical Examiner through expertise in forensic dental identification and provides on- and off-site training in forensic odontology for the US Army, US Air Force, US Navy and other government agencies.

STAFF

- Dental:*
Robert D. Foss CAPT, DC, USN, Chair
Christopher G. Fielding, COL, DC, USA
Duane R. Schafer, CAPT, DC, USN
Lisa A. Franklin, MAJ, DC, USA (6 months)
Jose Colon, DMD
Michael Gardner, Maj, USAF, DC
Bradley Jones, LT, DC, USN
- Administrative:*
Patricia Ashburn, Administrator

DIAGNOSTIC CONSULTATION

<i>Cases</i>	<i>Completed</i>
Military	453
Army (232)	
Navy (108)	
Air Force (113)	
Fmil (0)	
Federal	270
VA (266)	
USPHS (4)	
OFA (0)	
Civilian	518
Telemedicine	24
Interdepartmental	123
Total	1,428

Our Department consults on the wide variety of pathologic processes that affect the oral mucosa, jaws, major and minor salivary glands and associated structures in the maxillofacial region. These processes include, but are not limited to, odontogenic cysts and tumors, fibro-osseous lesions, salivary gland neoplasia, lymphoid processes, soft tissue tumors and metastatic disease. We perform consultative services for US Army, Navy and Air Force medical treatment facilities, Veterans Affairs medical centers, and US Public Health Service medical treatment centers, as well as civilian facilities in the US and the world.

Our department received 1262 outside consultation cases in 2008. Major changes in diagnosis were made in 13 cases, minor changes in 358 cases, and no change in the contributor diagnosis in 814 cases. We received 53 cases with no contributor diagnosis; 24 cases were recorded without coding. Turnaround time averaged 3.17 days.

IMPACT:

1. Deployments of members of the Department of Oral and Maxillofacial Pathology on Operation Iraqi Freedom forensic missions in support of the Office of the Armed Forces Medical Examiner included a number of high profile mass disasters and support of Operation Iraqi Freedom. These forensic missions provide rapid, accurate identification of disaster victims that result in the timely return of remains to next of kin.

In 2008:

a) 629 postmortem dental examinations were performed on 671 sets of remains processed at the Carson Mortuary at Dover AFB, DE. This figure includes active duty OIF or OEF casualties, civilian deaths in theater, Iraqi enemy prisoners of war and other military current deaths worldwide.

b) 558 antemortem records were compiled from military and civilian dental records (175), Corporate Dental Application electronic images (316), and the Central Panorex Storage Facility in Monterey, CA (67) resulting in:

- 1) 441 "positive" dental identifications (79%)
- 2) 9 "consistent with" dental identifications (1.6%)
- 3) 108 could not be identified by dental evidence comparison (19.4%)
- 4) 25 did not have antemortem dental records available (4.4 %)
- 5) 65 remains classified as "other than US military" were not identified

2. Departmental off-site forensic dental identification training laboratories were deployed to 19 military commands and provided 7,180 man-hours of readiness training for future mass casualty disasters. These laboratory exercises represent a major source of forensic dental identification training in the US Armed Forces.

3. At the annual meeting of the American Academy of Oral and Maxillofacial Pathology, the AFIP Slide Seminar continues to be the most popular continuing education course and it is always fully subscribed. In its 29th year, the seminar promotes the Department and Registry of Oral and Maxillofacial Pathology as a world leader in the specialty of Oral and Maxillofacial Pathology.

4. The third year of the residency program in oral and maxillofacial pathology, Naval Postgraduate Dental School, conducted at the AFIP, is structured to provide opportunities for research, slide and case review with staff, both individually and collectively. Presentation of a research project by the residents at the annual meeting of the American Academy of Oral and Maxillofacial pathology promotes our missions of education and research.

5. The department chair is Associate Director, Navy, AFIP, overseeing 47 assigned Navy personnel. COL Fielding is the Army Surgeon General's Consultant for Oral Maxillofacial Pathology and Forensic Dentistry. CAPT Schafer is the Consultant to the Surgeon General of the Navy for Oral and Maxillofacial Pathology and for Forensic Odontology.

Deployments:

Members of the Department of Oral and Maxillofacial Pathology maintain a readiness status, prepared to deploy within 4 hours of notification. In 2008, the Dental Division had 220 deployments to support the Office of the Armed Forces Medical Examiner with rapid, accurate and reliable dental identification. One hundred sixty-two of the missions came from the Oral and Maxillofacial Pathology Department. This figure represents a 26% increase in deploy-

ments from the previous year. Using state of the art digital technology, the identification process was complete within hours of the postmortem examination. This vital service facilitates the rapid return of remains to the family.

- CAPT Duane Schafer - 66 Forensic Missions, Operation Iraqi Freedom, Port Mortuary, Dover, DE
- COL Christopher Fielding - 48 Forensic Missions, Operation Iraqi Freedom, Port Mortuary, Dover, DE
- MAJ Lisa Franklin - 20 Forensic Missions, Operation Iraqi Freedom, Port Mortuary, Dover, DE
- CAPT Robert Foss - 19 Forensic Missions, Operation Iraqi Freedom, Port Mortuary, Dover, DE
- Dr. Jose Colon - 5 Forensic Missions, Operation Iraqi Freedom, Port Mortuary, Dover, DE
- LCDR Bradley Jones – 2 Forensic Missions, Operation Iraqi Freedom, Port Mortuary, Dover, DE
- MAJ Michael Gardner – 2 Forensic Missions, Operation Iraqi Freedom, Port Mortuary, Dover, DE

EDUCATION

Presentations and Seminars:

The Department of Oral and Maxillofacial Pathology provide programs that range from national and international meetings to in-house professional development. Further, portable forensic dental identification workshop kits were deployed 19 times for 7,180 man-hours of training of military personnel.

Courses:

Department staff participated in 12 AFIP/ARP courses, including the department's major course offerings, Forensic Dental Identification and Emerging Technologies, Surgical Oral and Maxillofacial Pathology and Clinical Oral and Maxillofacial Pathology, for a total of 11,296 man-hours of training. The staff participated in 14 non-AFIP courses, providing an additional 1,884 man-hours of education.

Trainees:

The department had 2 third-year residents in oral and maxillofacial pathology during 2008. The department had 8 visiting residents, including 3 Donald W. King fellows, for 195 man-days of training.

Educational Aids:

The Registry of Oral and Maxillofacial Pathology Case of the Month course is a web accessible online continuing education program that is available by subscription. It is utilized by pathologists for peer review and education, and is recognized by the American Board of Oral and Maxillofacial Pathology for fulfillment of the continuing competency requirements for maintenance of board certification. Each case is originally presented as an unknown and then followed up with a presentation of participant diagnoses, AFIP diagnosis and a discussion. Twelve new cases are posted each year. Older cases are archived on the Web site and are available for study. Three deployable forensic dental identification training laboratories are available and were deployed to 19 military commands and provided 7,180 man-hours of training in 2008.

RESEARCH

Publications:

Members of the department were authors of one journal articles.

Active Projects:

1. UBKH - Atypical chondroid neoplasia of the jaws
2. UBDZ - Mesenchymal Lesions of Oral Region
3. UBIG - Diagnosis of Malignant Salivary Gland Tumors
4. UB5H - Reticular Myoepithelioma
5. UB5L - Lymphoepithelial-like Carcinoma of the Skin from the Head and Neck.
6. UBXL - Benign Fibroblastic Tumors
7. Pending - 3D Virtual Images and Forensic Dental Identification Training

OTHER ACCOMPLISHMENTS

Collaborators:

Civilian:

Jennifer Hunt, MD, genotyping of odontogenic tumors

Interdepartmental:

1. Julie Fanburg-Smith, MD, soft tissue tumors of the head and neck
2. John Fetsch, MD, benign fibroblastic lesions

Committees:

1. Executive Committee AFIP, RD Foss
2. Deputies Management Council, RD Foss
3. Institutional Animal Care and Use Committee, RD Foss
4. Safety Committee, DR Schafer
5. AFIP Oral and Maxillofacial Department Logistic Officer, J Colon
6. Credentials Committee, CG Fielding
7. AFIP Research Committee Member, J Colon
8. Institutional Review Board, AFIP, J. Colon; Library Committee, DR Schafer
9. Faculty, George Washington University Forensic Sciences Master's Program, CG Fielding
10. Faculty, Uniformed Services University Department of Pathology, DR Schafer
11. Pathology Management Office Committee, DR Schafer

Manuscripts Reviewed:

Five

Offices/Committee Memberships other than AFIP:

1. Consultant to the Surgeon General (Army) in Oral and Maxillofacial Pathology, CG Fielding
2. Consultant to the Surgeon General (Army) in Forensic Dentistry, CG Fielding
3. Consultant to Navy Surgeon General in Oral and Maxillofacial Pathology, DR Schafer
4. Consultant to Navy Surgeon General in Forensic Dentistry, DR Schafer

Official Trips:

1. January 2008: Teaching Chiefs Conference, San Antonio, TX. CG Fielding, DR Schafer. Activities include planning curriculum and support strategies for Army and Navy post-graduate dental education. CG Schafer. (AMEDD), DR Schafer (NMETC)
2. February 2008: American Academy of Forensic Sciences, Annual Meeting, Washington, DC, DR Schafer, LA Franklin, J Colon. (Armed Forces Institute of Pathology)
3. March 2008: Naval Medical Clinic Great Lakes, Great Lakes, IL - served as Course Director for Forensic Dentistry Course. DR Schafer (NMC GREAT LAKES)
4. April 2008: Army Dental Clinic Ft. Benning, GA- served as Course Director for Forensic Dentistry Course. LA Franklin (FT BENNING DENTAC)
5. April 2008: Indian Health Services Dental Updates, Scottsdale, AZ - served as faculty and assistant Course Director for Forensic Dentistry Course. DR Schafer and CG Schafer (USPHS-IHS)
6. May 2008: Wilford Hall Medical Center Forensic Dentistry Course San Antonio, TX - served as faculty for annual US Air Force Forensic Dentistry Course CG Schafer (USAF)
7. June 2008: American Academy of Oral and Maxillofacial Pathology, San Francisco, CA. RD Foss, CG Schafer, DR Schafer, LA Franklin, J Colon, M Gardner (Armed Forces Institute of Pathology)
8. September 2008: American Board of Oral and Maxillofacial Pathology, Tampa, FL, M Gardner and B Jones (Armed Forces Institute of Pathology)
9. September 2008: Naval Dental Clinic Okinawa Japan - served as Course Director for Forensic Dentistry Course. DR Schafer (NDC OKINAWA)
10. October 2008: American Dental Association Annual Meeting, San Antonio, TX, CG Schafer (Armed Forces Institute of Pathology)

Continuing Education:

Department staff presented the following training courses during 2008:

1. Annual Meeting of the American Academy of Oral and Maxillofacial Pathology (AFIP)
2. Weekly Professional Staff Conference (AFIP)

3. Oral and Maxillofacial Pathology/Otolaryngologic and Endocrine Pathology Conference (AFIP)
4. Oral and Maxillofacial Pathology/Radiology Pathology Conference (AFIP)
5. 44th Annual Forensic Dental Identification and Emerging Technologies Course (AFIP)
6. Triservice Dental Educators Conference (DENCOM)
7. Naval Postgraduate Dental School Oral and Maxillofacial Pathology Conference, Bethesda, MD (NNMC)
8. WRAMC Oral and Maxillofacial Pathology Conference, Wash DC (WRAMC)

PRESENTATIONS

1. January 2008: Washington DC, AFIP, "Oral and Maxillofacial Pathology for Radiologists," CG Schafer.
2. January 2008 Rockville, MD, George Washington University's Principles of Forensic Science Course Introduction to Forensic Dentistry, "Personal Identification and Bite Mark Analysis," CG Schafer.
3. January 2008: Baltimore, MD, University of Maryland Dental School, "Differential Diagnosis of Mass Lesions," RD Foss
4. January 2008. Bethesda, MD, Naval Postgraduate Dental School "Bone Pathology of the Craniofacial Skeleton," CG Schafer.
5. February 2008: Bethesda, MD, Naval Postgraduate Dental School, "Soft Tissue Tumors," RD Foss.
6. February 2008: Bethesda, MD, Naval Postgraduate Dental School, "Mimics of Periodontal and Endodontic Lesion," RD Foss.
7. February 2008: Bethesda, MD, Naval Postgraduate Dental School, "Bone Pathology of the Craniofacial Skeleton," CG Schafer.
8. February 2008: Bethesda, MD, Naval Postgraduate Dental School, "Syndromes of the Head and Neck," DR Schafer.
9. February 2008: Bethesda, MD, Naval Postgraduate Dental School, "Benign and Malignant Epithelial Lesions," DR Schafer.
10. March 2008: Washington DC, George Washington University, "Bone Pathology," - Pathology Residents, J Colon.
11. March 2008: Washington DC, George Washington University, "Salivary Gland Pathology" - Pathology Residents, J Colon.
12. March 2008: Washington DC, George Washington University, "Odontogenic Tumors" - Pathology Residents, J Colon.
13. March 2008: Bethesda, MD AFIP 44th Annual Forensic Dental Identification and Emerging Technologies Workshop, "Introduction to Forensic Dentistry," CG Schafer.
14. March 2008: Faculty and Course Director for AFIP 44th Annual Forensic Dental Identification and Emerging Technologies Course. DR Schafer and CG Schafer .
15. April 2008: Fort Benning, GA, "Forensic Odontology Workshop," One-Year AEGD Residents, LA Franklin.
16. April 2008: Fort Benning, GA, "Common Dental Lesions," Fort Benning USA DENTAC, LA Franklin.
17. April 2008: Washington DC, WRAMC Post Professional Short Course in Oral Pathology, Oral Medicine, and Oral Diagnosis, "Introduction to Forensic Odontology," J Colon.
18. April 2008: Washington, DC WRAMC Post Professional Short Course in Oral Pathology, Oral Medicine, and Oral Diagnosis: Benign and Malignant Bone Lesions of the Jaws, CG Schafer.
19. April 2008: Washington DC, Armed Forces Institute of Pathology Anatomic Pathology Course, "Salivary Gland Tumors," RD Foss.
20. April 2008: WRAMC Post Professional Short Course in Oral Pathology, Oral Medicine, and Oral Diagnosis, "Syndromes of the Head and Neck," Washington DC, DR Schafer.
21. May 2008: Alexandria, VA, West Potomac Academy, "Introduction to Forensic Odontology," J Colon.
22. May 2008: Washington DC, Armed Forces Institute of Pathology Anatomic Pathology Course, "Salivary Gland Tumors," RD Foss.
23. May 2007: Rockville, MD, George Washington University's Principles of Forensic Science Course Introduction to Forensic Dentistry "Personal Identification and Bite Mark Analysis," J Colon.

24. June 2008: San Francisco, CA, American Academy of Oral and Maxillofacial Pathology, AFIP Seminar, Case Presentations "Ancient Schwannoma" and "Carcinoma Arising in an Inverted Papilloma," DR Schafer.
25. June 2008: San Francisco, CA, American Academy of Oral and Maxillofacial Pathology, AFIP Seminar, Case Presentations "Craniopharyngioma" and "Osteoblastoma with Secondary Aneurysmal Bone Cyst Changes," CG Schafer.
26. June 2008: San Francisco, CA, American Academy of Oral and Maxillofacial Pathology, AFIP Seminar, Case Presentations "Melanotic Neuroectodermal Tumor of Infancy" and "Ewing's Sarcoma-like Neoplasm," LA Franklin.
27. June 2008: San Francisco, CA, American Academy of Oral and Maxillofacial Pathology, AFIP Seminar, Case Presentations "Reticulated Myoepithelioma" and "Multicentric Myofibromatosis," RD Foss.
28. June 2008: San Francisco, CA, American Academy of Oral and Maxillofacial Pathology, AFIP Seminar, Case Presentations "Nodular Sclerosing Hodgkin's Lymphoma" and "Liposarcoma," J Colon.
29. July 2007: Rockville, MD, George Washington University's Principles of Forensic Science Course Introduction to Forensic Dentistry "Personal Identification and Bite Mark Analysis," COL Fielding.
30. October 2008: Silver Spring, MD, Southern Maryland Dental Society, "Differential Diagnosis of Mass Lesions," RD Foss.
31. November 2008: Bethesda, MD, "Oral Pathology," Uniformed Services University of Health Sciences General Pathology Course, DR Schafer.

Publications:

Journal Articles:

Closmann JJ, Fielding CG, Pogrel MA. Prevention and management of trigeminal herpes zoster and postherpetic neuralgia. *Gen Dent.* 2008;56:563-6.

GOALS

Our department supports the goals and missions of the AFIP. In addition, we aim to increase the number of military and other government agency contributors and military and other government agency attendees at our short courses and thereby increase our military value.



Dennis K. Heffner, MD
Chair
Date of Appointment — 1 September 1984

DEPARTMENT OF ENDOCRINE AND OTORHINOLARYNGIC/HEAD-NECK PATHOLOGY

STAFF

Medical:
Clara S. Heffess, MD, Chief, Division of Endocrine Pathology
Jacqueline A. Wieneke, MD, Chief, Division of Otorhinolaryngic/Head-Neck Pathology
Administrative:
Frank Flannery, Administrative Assistant

IMPACT

Approximately 30% of consultation cases resulted in a change of diagnosis from the contributors' impressions and most changes had a significant (and sometimes crucial) effect on patient treatment decisions. The quality and impact of our diagnostic consultation is seen most clearly in those rare or difficult cases where our diagnostic experience could not have been matched anywhere in the world.

CONSULTATION

The department consults on difficult or controversial histopathologic diagnostic cases received from US military medical commands or facilities, VA medical centers, US Public Health centers, and nongovernmental civilian hospitals in the United States and abroad. The vast majority of cases are active surgical pathology cases with patient treatment decisions awaiting the consultative diagnostic evaluation. Our staff deals with a broad spectrum of pathologic conditions, consisting of a multitude of disease entities affecting the upper respiratory tract, ear, and adjacent or related anatomic areas of the head and neck, and diseases of the pancreas, adrenal, thyroid and parathyroid glands.

<i>Cases</i>	<i>Completed</i>
Military	454
Army (224)	
Navy (113)	
Air Force (117)	
Federal	463
VA (463)	
USPHS (0)	
Civilian	743
Total	1660

EDUCATION

Presentations:

Departmental members continued to present multiple lectures at local medical facilities such as Georgetown University Medical Center, George Washington University Medical Center, and Walter Reed Army Medical Center, and also participated in the AFIP 18th Annual Pathology Review Course. Poster presentations at international meetings were done.

RESEARCH

Journal Articles:

1. Heffner DK. Pathologists are from Mercury, clinicians are from Uranus: the perverted prospects of perceptual pathology. *Ann Diagn Pathol.* 2008;12:304-309.
2. Heffner DK. Treatments for pulmonary sarcoidosis (letter-to-the-editor). *Respiratory Medicine.* 2008;102:1674.
3. Gupta R, et al. (incl. Heffess CS). Pancreatic intraductal papillary mucinous neoplasms: Role of CT in predicting pathologic subtypes. *AJR.* 2008:191.
4. Elsheik TM, et al. (incl. Heffess CS). Interobserver and intraobserver variation among experts in the diagnosis of thyroid follicular lesion with borderline features of papillary carcinoma. *Am J Clin Pathol.* 2008;130:736-744.
5. Wieneke JA, Smith A. Sine qua non radiology-pathology (Head Neck Pathology Radiology Classics): Parathyroid adenoma. *Head Neck Pathol.* 2008;2:305-308.

Book Chapters:

Wieneke JA, Lack EE. The adrenal glands. In: Bostwick DG, Eble JN, eds, *Urologic Surgical Pathology*, 2nd edition. St. Louis, Mo. Mosby; 2008.

PROFESSIONAL ACTIVITIES

Editorial Work:

The staff reviewed numerous professional articles for suitability for publication in peer reviewed professional journals.

1. CS Heffess, Associate Editor, *Endocrine Pathology Journal.*
2. JA Wieneke, Editorial Board, *Ear, Nose, & Throat Journal.*
3. JA Wieneke, Section Editor (Radiology-Pathology Correlation Clinics), *Head & Neck Pathology Journal.*
4. JA Wieneke, American Joint Committee on Cancer: Genitourinary Task Force Co-chairman: Tumor Staging System, Adrenal Section.
5. JA Wieneke, Institutional Review Board, AFIP.
6. DK Heffner, Editorial Board, *Ann Diagn Pathol.*

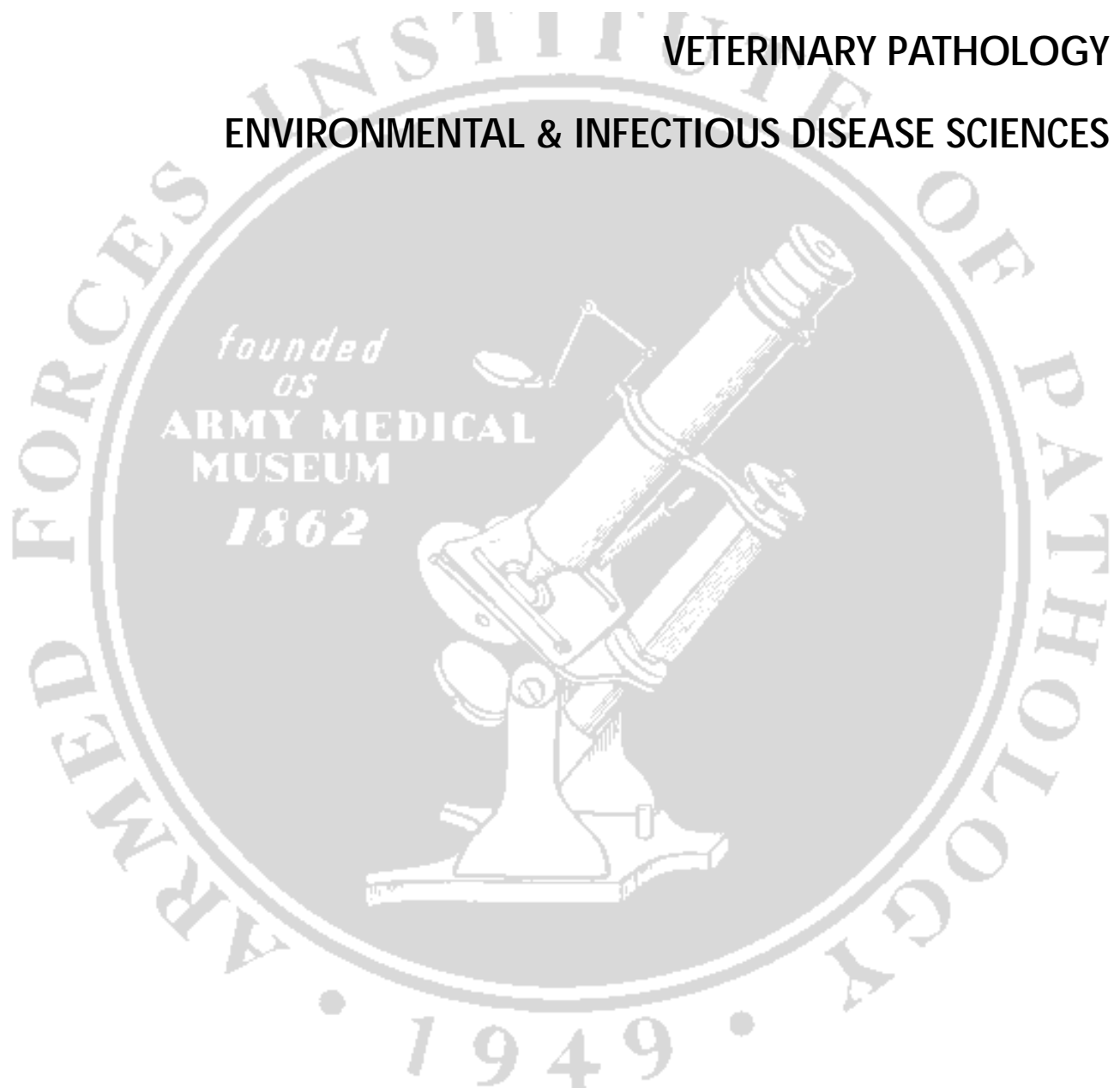
ADVANCED PATHOLOGY

GROUP 3

HEMATOPATHOLOGY

VETERINARY PATHOLOGY

ENVIRONMENTAL & INFECTIOUS DISEASE SCIENCES





Nadine S. Aguilera, MD
Chair
Date of Appointment – March 2005

DEPARTMENT OF HEMATOPATHOLOGY

STAFF

- Medical:*
Nadine S. Aguilera, MD, Chair
Aaron Auerbach, MD, Assistant Chair
Bong Kim, MD, Part time staff
- Administrative:*
Tasha Portee, Administrator

IMPACT:

The Department of Hematopathology makes available to the DoD, VA and Civilian hospitals expert consultations in lymph node, spleen and bone marrow. We provide comprehensive consultation in conjunction with other departments at the AFIP and use up-to-date technology for the best possible diagnosis. We provide Hematopathology training to all three branches of the military (Army, Navy and Air Force) and civilian pathologists. We also contribute to the education of military residents through lectures to the residents of the National Capital Consortium and rotations in the Department. Our active research is of benefit to military, VA and civilian health care.

CONSULTATION

The Department of Hematopathology renders expert consultation on cases involving the pathology of the hematopoietic system including lymph node, spleen and bone marrow. Cases are submitted by the Departments of Defense and Veterans Affairs, and by civilian hospitals worldwide. Staff members participate in various local and national educational and research endeavors involving topics related to hematopathology.

<i>Cases</i>	<i>Completed</i>
Military	142
Army (71)	
Navy (45)	
Air Force (25)	
PHS (1)	
Federal	552
VA (552)	
Other (0)	
Civilian	125
Interdepartmental	1154
Total	1973

EDUCATION:***Courses taught by staff as faculty:***

March 2008: Bethesda MD, Armed Forces Institute of Pathology Anatomic Pathology Review Course- 5 lectures

Trainees:

In 2008, the department had 2 residents rotating for one month from National Capital Consortium. We also trained 5 residents from outside institutions. In 2008 we completed 132 training days with responsibilities involving service work (under the constant supervision of a credentialed staff pathologist), research and lecturing.

Educational Aids:

The department maintains slide study sets (under protocol), kodachrome sets, and a Web site maintained by a staff member. All study sets and tools were updated to the WHO classification in 2002 and are updated in an ongoing fashion to the new 2008 WHO classification.

Faculty Appointments:

Uniformed Services University of the Health Sciences, Adjunct Associate Professor--NS Aguilera.

Presentations:

1. Jan 12, 2008: Washington DC, George Washington University, "An overview of Cardiac Pathology," A Auerbach.
2. March 25, 2008: Bethesda MD, AFIP's 18th Annual Surgical Pathology Course, "Small B cell lymphoma," A Auerbach.
3. March 25, 2008: Bethesda MD, AFIP's 18th Annual Surgical Pathology Course, "Large B cell lymphoma," A Auerbach.
4. March 25, 2008: Bethesda MD, AFIP 18th Anatomic Pathology Review Course, "T and NK-cell lymphomas," N Aguilera
5. March 25, 2008: Bethesda MD, AFIP 18th Anatomic Pathology Review Course, "Hodgkin lymphoma," N Aguilera
6. March 25, 2008: Bethesda MD, AFIP 18th Anatomic Pathology Review Course, "Reactive lymphadenopathy," B Kim
7. April 16, 2008: Philadelphia, PA, The Osler course, "Cardiac Pathology," A Auerbach.
8. April 16, 2008: Philadelphia, PA, The Osler course, "Liver Pathology," A Auerbach.
9. April 16, 2008: Philadelphia, PA, The Osler course, "Soft tissue Pathology," A Auerbach.
10. April 16, 2008: Philadelphia, PA, The Osler course, "Neoplasia and Inflammation," A Auerbach.
11. May 1, 2008: Washington DC, AFIP Video Teleconference, "New markers in T cell lymphoma," A Auerbach.
12. May 6, 2008: Washington DC, George Washington University, "T cell lymphoma," A Auerbach.
13. May 7, 2008: Washington DC, AFIP Professional Staff Conference, "Difficult cases in Hematopathology," B Kim.
14. May 11, 2008: Tampa FL, The Osler course, "Cardiac Pathology," A Auerbach.
15. May 11, 2008: Tampa FL, The Osler course, "Liver Pathology," A Auerbach.
16. May 11, 2008: Tampa FL, The Osler course, "Soft tissue Pathology," A Auerbach.
17. May 11, 2008: Tampa FL, The Osler course, "Neoplasia, and Inflammation," A Auerbach.
18. August 13, 2008: Washington DC, National Capital Consortium Pathology Resident's lecture "Benign reactive lymphadenopathy," N Aguilera
19. September 9, 2008: Silver Spring MD, AFIP 19th Annual Gastrointestinal Surgical Pathology course, "Interesting lymphoid lesions of the Gastrointestinal tract," A Auerbach.
20. October 7, 2008: Tampa FL, The Osler course, Tampa Florida, "Cardiac Pathology," A Auerbach.
21. October 7, 2008: Tampa FL, The Osler course, Tampa Florida, "Liver Pathology," A Auerbach.
22. October 7, 2008: Tampa FL, The Osler course, Tampa Florida, "Soft tissue Pathology," A Auerbach.
23. October 7, 2008: Tampa FL, The Osler course, Tampa Florida, "Neoplasia and Inflammation," A Auerbach.
24. October 8, 2008: Tampa FL, The Osler course, Tampa Florida, "Coagulation," A Auerbach.

25. October 13, 2008: Washington DC, National Capital Consortium, "T cell lymphoma part," A Auerbach.
26. October 14, 2008: Washington DC, National Capital Consortium, "Interesting cases in Hematopathology," A Auerbach.
27. October 16, 2008: Washington DC, National Capital Consortium, Resident's lecture "T/NK-cell lymphoma," N Aguilera
28. October 20, 2008: Washington DC, National Capital Consortium, "Coagulation Pathways," A Auerbach.
29. October 21, 2008: Washington DC, National Capital Consortium, "Diseases of the Coagulation system," A Auerbach.
30. October 23, 2008: Washington DC, National Capital Consortium Pathology Resident's lecture "Spleen," N Aguilera
31. October 23, 2008: Washington DC, National Capital Consortium Pathology Resident's lecture "Hodgkin lymphoma," N Aguilera
32. Nov 7, 2008: Washington DC, Lecture National Capital Consortium, "Cases in coagulation," A Auerbach.

RESEARCH

Publications

Journal Articles:

1. Ozbudak IH, Shilo K, Hale S, Aguilera NS, Galvin JR, Franks TJ. Alveolar airspace and pulmonary artery involvement by extramedullary hematopoiesis: A unique manifestation of myelofibrosis. *Arch Pathol Lab Med.* 2008; 132:99-103.
2. Sargent RL, Cook JR, Aguilera NI, Surti U, Abbondanzo SL, Gollin SM, Swerdlow SH. Fluorescence immunophenotypic and interphase cytogenetic characterization of nodal lymphoplasmacytic lymphoma. *Am J Surg Pathol.* 2008;32:1643-53.
3. Gonzalez-Cuyar LF, Tavora F, Zhao XF, Wang G, Auerbach A, Aguilera N, Burke A. Angiolymphoid hyperplasia with eosinophilia developing in a patient with history of peripheral T-cell lymphoma: evidence for a multicentric T-cell lymphoproliferative process. *Diag Pathol.* 2008; 3:22 (open access journal)
4. Kovarik CL, Barrett T, Auerbach A, Cassarino DS. Acral myxoinflammatory fibroblastic sarcoma: case series and immunohistochemical analysis. *J Cutan Pathol.* 2008;35:192-6.

Abstracts:

1. Wang GW, Wei MQ, Dow N, Auerbach A, Hodge L, Prozybocki J, Aguilera N, Sobin LH. t(11;18) (q21;q21) in gastric mucosa-associated lymphoid tissue (MALT) lymphoma: Molecular, immunohistochemical and histologic study of 65 cases. *Mod Pathol.* 2008; 21;Suppl1: 139A#632
2. Nelson AM, Auerbach A, Man Y-G. HIV and mast cells in human tissue. *Mod Pathol.* 2008; 21;Suppl1: 288A#1312.
3. Fanburg-Smith JC, Auerbach A, Heffess CS. Retroperitoneal paraganglioma, 70 cases: Attempt to histologically predict malignant behavior. *Mod Pathol.* 2008; 21;Suppl1: 107A#484.

Projects:

The department has the following active research protocols as of January 1, 2008 and several ongoing research projects, including the following:

1. Splenic non-lymphomatous neoplasms
2. Lymphoplasmacytoid lymphoma/immunocytoma
3. Diffuse large B-cell lymphoma, two unusual subtypes.
4. Castleman lymphadenopathy with monoclonal plasma cells
5. Plasmacytoid dendritic cell expressing CD123 in histiocytic necrotizing lymphadenitis
6. Prediagnostic markers of immune activation and viral infection and risk of non-Hodgkin lymphoma

Collaborators:

Military/Federal:

Elaine S. Jaffe, MD, National Institutes of Health, Histiocytic Neoplasms.

Civilian:

1. Steven H. Swerdlow, MD, University of Pittsburgh. Immunocytoma, Interfollicular Small Lymphocytic Lymphoma and Lymphoplasmacytoid lymphoma/Immunocytoma
2. Frank Bauer, MD, St. Francis Hospital, Hartford CT. Cutaneous follicle center lymphoma

Interdepartmental:

A Levy, Department of Radiologic Pathology

Military:

We have a collaborative education mission with NNMC and WRAMC as well as an education mission with the National Capital Consortium Pathology Residency.

PROFESSIONAL ACTIVITIES

Official Trips:

1. April 2008: United States and Canadian Academy of Pathology; NS Aguilera and A Auerbach.
2. April 2008: College of American Pathologists, A Auerbach.

Editorial Work:

1. *Human Pathology*- Reviewer -N Aguilera
2. *Head and Neck Pathology Journal* –Reviewer- N Aguilera

Committees (Intramural):

1. Internal Review Board- NS Aguilera (Chair)
2. Graduate Medical Education Committee- NS Aguilera
3. Research committee-B Kim

Committees (extramural):

House of Delegates for College of American Pathology- A Auerbach

Extra duties:

Director of Immunohistochemistry- A Auerbach

Continuing Education:

The department staff attended the following training courses during 2008:

1. Annual U.S. and Canadian Academy of Pathology
2. AFIP Weekly Professional Staff Conference
3. AFIP Annual Anatomic Pathology Review and Update Course
4. Society for Hematopathology
5. College of American Pathologists



Jo Lynne W. Raymond, COL, VC, USA
Chair
Date of Appointment – 1 June 2008

DEPARTMENT OF VETERINARY PATHOLOGY

STAFF

Administrative:

(A & D) Greta James, Department Secretary
David Vargas, Administrative Officer

CONSULTATION AND TRAINING DIVISION



Todd O. Johnson, LTC, VC, USA
Chief
Date of Appointment — 2 October 2006

STAFF

Medical:

(D) Shelley P. Honnold, MAJ, VC, USA, Chief, Training Branch
Taylor B. Chance, MAJ, VC, USA, Chief, Training Branch - Date of Appt – 1 October 2008
Sarah L. Hale, LTC, VC, USAR (DIMA)
Michelle L. Fleetwood, DVM, Chief, Consultation Branch
Thomas P. Lipscomb, DVM, Consultant Pathologist
F. Yvonne Schulman, DVM, Consultant Pathologist

Administrative:

Ann Brown, Secretary

Residents:

(D) Erica E. Carroll, LTC, VC, USA
Christine L. Christensen, MAJ, VC, USA
Paul R. Facemire, MAJ, VC, USA
Margaret A. Hanson, CPT, VC, USA
Eric D. Lombardini, CPT, VC, USA
Gwynne E. Kinley, MAJ, VC, USA
Gerri L. Fletcher, MAJ, VC, USA
Cary L. Honnold, MAJ, VC, USA
Todd M. Bell, MAJ, VC, USA

RESEARCH AND EDUCATION DIVISION



Bridget S. Lewis, MAJ, VC, USA
Chief (also PROFIS to 9th AML)
Date of Appointment – 1 June 2008

STAFF

Medical:

William E. Culp, MAJ, VC, USA, Chief, Education Branch

Administrative:

Michael Sean Hahn, Communications Director

Scientific/Technical:

Henry John Jenkins, Electron Microscopist and Laboratory Technician

Scott R. Shaffer, Computer Technology Education Specialist

Residents:

(D) Neel I. Aziz, CPT, VC, USA

(D) Michelle E. Thompson, CPT, VC, USA

(D) William L. Wilkins, MAJ, VC, USA

William E. Culp, MAJ, VC, USA – moved to staff position (above)

(A) Connie Schmitt, MAJ, VC, USA

(A) Jeremy Bearss, MAJ, VC, USA

(A) Michelle Jefferson, CPT(P), VC, USA

(A) Shannon Lacy, CPT(P), VC, USA

LABORATORY ANIMAL MEDICINE DIVISION



Michael R. Bonhage, MAJ, VC, USA
Chief
Date of Appointment-1 Sept 2007

STAFF

Medical: None

Scientific:

SGT Angela Noble

SPC Christine Wilde (D)

SPC Chrishaundi Butler (D)

PFC Krystle Padgett (A)

PVT Adam Bajorek

Steve McNair, LATG certified

Administrative:

Greeley Stones, LATG certified

Animal Caretaker Staff:

Michael Cannon
Rahsaan Jackson
James Pollock

IMPACT:

The most significant program in the department is the DoD Veterinary Pathology Residency. With only one exception, the Army veterinary pathologists now on active duty completed their postgraduate training in this program at the AFIP. Army veterinary pathologists are directly involved in critical DoD biomedical research efforts to protect the warfighter. Army veterinary pathologists are also trained in the detection and recognition of foreign animal diseases, many of which are potential biological weapons and of great importance to the nation's global war on terrorism. In the face of a worldwide shortage of veterinary pathologists, the Veterinary Pathology Residency Program at the AFIP continues to be a cost-effective and efficient source of trained pathologists for all DOD research, investigative and diagnostic pathology needs. Currently, 12 officers are enrolled in the program.

The operation of the laboratory animal facility at AFIP provided for important animal-model based research on human diseases for the AFIP, the Walter Reed Army Medical Center, Department of Clinical Investigation, and the National Naval Medical Center. The facility is fully accredited by the Association for Assessment and Accreditation of Laboratory Animal Care, International (AAALAC). In 2008, the program was inspected by AAALAC and gained reaccreditation.

The department provided critical diagnostic pathology services for military working animals and other federal animal programs. Members also provided consultation services to the National Marine Fisheries Service on several issues involving marine mammal deaths.

The department continued to maintain and expand the Veterinary Systemic Pathology Online program. This resource contains case manuscripts with digital photomicrographs and virtual slide images of more than 675 disease entities, including most of the high consequence zoonotic and foreign animal diseases of importance in the Global War on Terrorism. All department online programs are freely available 24/7 to military medical professionals. This resource enables the forward positioning of critical disease information without the need for deploying specialists.

The department conducted a 25-week histopathology ("Wednesday") slide conference (WSC) with 135 participating institutions in 21 countries. This conference has an enormous impact on training programs and on hundreds of veterinary pathologists and residents worldwide. The WSC has been the signature program of this department for 56 years and is the only one of its kind in the world.

The WHO Collaborating Center completed the final fascicle in the new series of the Histologic Classification of Tumors in Domestic Animals. These fascicles are an important reference used worldwide in diagnostic and research pathology, and the current series is the first update in 25 years.

Annual pathology courses provided essential training for military medical research specialists and are key core components of the DoD Residency Program. These courses are also unique to the specialty of veterinary pathology.

CONSULTATION

The department provides essential diagnostic pathology services for the DoD Military Working Dog program and other federal working animal programs, including the Navy Marine Mammal Program and those conducted by the Customs Service, Border Patrol, National Security Agency and Secret Service. Veterinary pathology consultation is vital to maintaining the health and deployability of these important force protection assets in the global war on terrorism. It is also important in maintaining disease surveillance measures in military communities. The importance of surveillance has substantially increased with the threat of bioterrorism. All of the known potential biological weapons, with the exception of smallpox, are zoonotic diseases. Members of the department also provide consultation and investigative services to the National Marine Fisheries Service on issues of military importance.

The department completed 2,135 consultation cases, which originated primarily from the DoD and other federal agencies. Over 30% of cases reported represent complete necropsies in which wet tissue was received. The majority of these cases are military working dogs and marine mammals, which generate a continuous high demand for histopathologic assessment of tissues. Ten cases received a diagnosis agreement code of "4" representing a major dis-

agreement with the contributor's diagnosis, and 72 were code "3" (minor disagreement). Department staff members and residents conducted 388 necropsies. Histopathology was performed on almost all necropsy cases. The National Zoological Park (NZIP) and the Maryland State Diagnostic Laboratory (MDX) necropsy cases are not included with AFIP consultation case totals, since they are assessed by AFIP residents with NZP or MDX staff pathologists at those institutions.

<i>Cases</i>	<i>Completed</i>
Military	1344
Army (713)	
Navy (267)	
Air Force (364)	
Federal	27
VA (1)	
USPHS (8)	
OFA (18)	
Civilian	764
Interdepartmental	0
Total	2135

Necropsies Conducted:

Division of Laboratory Animal Medicine, AFIP	11
National Zoological Park (NZP)	81
Maryland State Diagnostic Lab (MDX)	127
National Institutes of Health	169
Other (marine mammals/military working dogs)	0
Total	388

Clinical appointments outside the AFIP:

None.

Deployments:

1. December 2007–January 2009: Iraq, SGT Angela Noble.
2. January 2008: Armed Forces Research Institute of the Medical Sciences, Bangkok, Thailand, Pathology and research support, SL Hale.
3. January 9, 2008: Ft. Belvoir, VA, U.S. Army North Atlantic Regional Veterinary Command Junior Officer Conference, Present lecture "Diagnostic cytology of skin and subcutaneous masses," TO Johnson.
4. August 11-15, 2008: Albuquerque, NM, AMEDD Veterinary Junior Officer Council meeting, MA Jefferson.
5. August 11-15, 2008: 11th Annual Force Health Protection Conference, Albuquerque, NM, MA Jefferson.

EDUCATION

Courses:

In 2008, the Department of Veterinary Pathology taught in five course, two seminars, and two workshops. The Department also conducted regular conferences and workshops on a daily, weekly, and quarterly basis.

1. CL Davis Foundation Gross Morbid Anatomy of Domestic Animals Course
2. Descriptive Veterinary Pathology Course
3. Northeastern Veterinary Pathology Conference
4. Pathology of Laboratory Animals/Current Laboratory Animal Science Seminar Course
5. Wednesday Slide Conference

Seminars:

US Army Laboratory Animal Medicine Seminar Series

Trainees:

1. 12 Full-time DoD residents
2. 1 National Zoological Park resident
3. 1 Visiting board-eligible Veterinary Corps Officer
4. 27 visiting residents and veterinary medical students

Faculty Appointments outside the AFIP:

1. Pathologist, Marshfield Clinic Laboratories, Veterinary Diagnostic Services, Marshfield, WI, FY Schulman, TP Lipscomb
2. Diagnostic Pathology Specialty Group, American College of Veterinary Pathologists, FY Schulman
3. Lymphoid leukemias and Lymphomas Subcommittee of the Oncology Committee, American College of Veterinary Pathologists, FY Schulman
4. Working Group Unusual Marine Mammal Mortality Events, Departments of Commerce and Interior, ML Fleetwood (emeriti: DG Dunn, TP Lipscomb, FY Schulman)
5. Head, WHO/PAHO Collaborating Center for Worldwide Reference on Comparative Oncology, FY Schulman
6. Joint Working Group on Unusual Marine Mammal Mortality Events, Departments of Commerce and Interior, ML Fleetwood
7. Examination Committee, American College of Veterinary Pathologists, SL Hale
8. Member, Board of Directors, CL Davis Foundation, SL Hale
9. Pathologist, Covance Laboratories, Inc., Vienna, VA, SL Hale
10. Course Director, CL Davis Foundation Continuing Education Symposium at the 2008 American College of Veterinary Pathologists Annual Meeting, SL Hale
11. President and member of Board of Directors, CL Davis Foundation, BL Williams
12. Member, USDA-sponsored AHC/AAEP/APHIA/USAHA Monthly Teleconference on Equine Emerging Diseases, PR Facemire
13. Oncology Committee, American College of Veterinary Pathologists, TP Lipscomb
14. 9th Army Medical Laboratory, Aberdeen Proving Grounds, MD, BS Lewis (PROFIS)

PRESENTATIONS

1. January 2008: Blacksburg, VA, Virginia-Maryland Regional College of Veterinary Medicine, "Opportunities in the Army Veterinary Corps," CL Christensen.
2. February 2008: Washington, DC, AFIP Weekly Professional Staff Conference, "Leptospirosis in a juvenile northern elephant seal," ED Lombardini.
3. February 2008: Washington, DC, AFIP Weekly Professional Staff Conference, "Kochia toxicity in a Cow," PR Facemire.
4. February 2008: Washington, DC, AFIP Weekly Professional Staff Conference, "Peripheral nerve sheath tumor in a pygmy killer whale," CL Christensen.
5. February 2008: Washington, DC, AFIP Weekly Professional Staff Conference, "Erythema multiforme in a ferret," MA Hanson.
6. February 2008: Silver Spring, MD, National Capital Area Pathology Seminar, "Industrial Toxicologic Pathology," SL Hale.
7. March 2008: Dublin, Ireland, "Diagnostic Immunopathology," Descriptive Veterinary Pathology Course, JW Raymond.
8. March 2008: Seattle, WA, Introduction to Pathology for Toxicologists and Study Directors, "Basic Concepts in Pathology and the Role of the Toxicologic Pathologist," SL Hale.
9. April 2008: Columbia, MD, Career Day, Wilde Lake Middle School, "Careers in Veterinary Medicine and the U.S. Army Veterinary Corps," TO Johnson.
10. April 2008: Plum Island, NY, Plum Island Animal Disease Center, Lecturer "Zoonotic Diseases and Emerging Infectious Diseases," Foreign Animal Disease Diagnostician Course. ED Lombardini.
11. May 2008: Falls Church, VA, Pathology for Non-Pathologists Course, "Practical Techniques" and "Risk Assessment and the NOAEL," SL Hale.
12. May 2008: Rome, Italy, 39th Annual meeting of the International Association of Aquatic Animal Medicine, Marine Pathology Workshop, "Immunoblastic Lymphoma in a Bottle-nose Dolphin," ML Fleetwood.
13. June 2008: Bethesda, MD, Descriptive Veterinary Pathology Course, "Examination Review," SL Hale, TO Johnson, SP Honnold, ML Fleetwood, BS Lewis, JW Raymond.

14. June 2008: Bethesda, MD, Descriptive Veterinary Pathology Course, "Diagnostic Immunopathology," JW Raymond.
15. July 2008: Washington, DC, AFIP Summer Intern Program, "Veterinary Pathology at the AFIP," ML Fleetwood.
16. July 2008: Chicago, IL, Symposium on the Basal Ganglia, "Comparative Anatomy of the Basal Ganglia," SL Hale.
17. August 2008: Baltimore, MD, Johns Hopkins University, Department of Comparative Medicine, "Diseases of Marine Mammals," ML Fleetwood.
18. August 2008: Baltimore, MD, Johns Hopkins University, Department of Comparative Medicine, Resident Slide Conference, ML Fleetwood.
19. August 2008: Bethesda, MD, Pathology of Laboratory Animals Course, "Diseases of Rabbits," JW Raymond.
20. October 2008: Saratoga Springs, NY, Northeastern Veterinary Pathology Conference, "Epithelioid gastrointestinal stromal tumor in a Pacific walrus," GE Kinley.
21. October 2008: Saratoga Springs, NY, Northeastern Veterinary Pathology Conference, "Feline acquired skin fragility syndrome," GL Fletcher.
22. October 2008: Saratoga Springs, NY, Northeastern Veterinary Pathology Conference, "Trypanosoma cruzi in a chimpanzee," TM Bell.
23. October 2008: Saratoga Springs, NY, Northeastern Veterinary Pathology Conference, "Syringocystadenoma papilliferum in a one-year-old cat," CL Honnold.
24. November 2008: San Antonio, TX, American College of Veterinary Pathologists Annual Meeting, "Primitive neuroectodermal Tumor in a two-year-old Paint Horse," PR Facemire.
25. November 2008: San Antonio, TX, American College of Veterinary Pathologists Annual Meeting, "Nephroblastoma in two Siamese Fighting Fish," Poster Presentation. ED Lombardini.
26. November 2008: San Antonio, TX, American College of Veterinary Pathologists Annual Meeting, "Peripheral nerve sheath tumor in a pygmy killer whale," CL Christensen.
27. November 2008: San Antonio, TX, Orthopedic Pathology: 50 Years On, "Aneurysmal Bone Cyst" and "Hypertrophic Osteopathy," SL Hale.
28. November 2008: Ft. Detrick, MD, US Army Laboratory Animal Medicine Residency Seminar Series, "Regulation and Policies Part II- PHS Policy and the Guide," MR Bonhage.
29. December 2008: Columbus, OH, The Ohio State University, College of Veterinary Medicine, Lecturer, "Military Veterinary Medicine and International Opportunities," Global Veterinary Medicine Elective Course. ED Lombardini.

RESEARCH

Journal Articles:

1. Bonhage MR, Chilcoat CD, et al. Evaluation of two scopolamine and physostigmine pretreatment regimens against nerve agent poisoning in the dog. *J Vet Pharmacol Therap.* 2008; online.
2. Stern S, Rice J, Philbin N, McGwin G, Arnaud F, Johnson T, Flournoy WS, Ahlers S, Pearce LB, McCarron R, Freilich D. Resuscitation with the hemoglobin based oxygen carrier, HBOC-201, in a swine model of severe uncontrolled hemorrhage and traumatic brain injury (TBI). *Shock*, (May 19 epub ahead of print), 2008.
3. Thompson ME, Lewin-Smith MR, Kalasinsky VF, Pizzolato KM, Fleetwood ML, McElhaney MR, Johnson TO. Characterization of melamine-containing and calcium oxalate crystals in three dogs with suspected pet food-induced nephrotoxicosis. *Vet Pathol.* 2008;45:417-426.

Abstracts:

1. Christensen CL, Blanchard TW and West KL. Peripheral nerve sheath tumor in a pygmy killer whale (*Feresa attenuata*). (Poster presentation) American College of Veterinary Pathologists Annual Meeting, San Antonio, TX, Nov 2008.
2. Facemire P, Facemire L and Honnold S. Primitive neuroectodermal tumor (PNET) in a two-year-old paint horse. (Poster presentation) American College of Veterinary Pathologists Annual Meeting, San Antonio, TX, Nov 2008.
3. Lehman R Jr, Dmitriev A, Cardoso MJ, Raymond J, Christensen C, Helgeson H, Kuklo T and Riew KD. Effect of teriparatide (rhPTH134) and calcitonin on intertransverse process fusion in a rabbit model. *The Spine Journal.* 2008.;8(5):42S.
4. Lewin-Smith MR, Carroll EE, Kalasinsky VF, Johnson TO, Mullick FG. Characterization of

melamine-containing crystals and calcium oxalate crystals in the kidneys of two domestic cats by histopathology, infrared spectroscopy, and scanning electron microscopy with energy dispersive x-ray analysis. United States and Canadian Academy of Pathology Annual Meeting, Denver, CO, 2008.

5. Lombardini ED, Lewis BS, Law M. Nephroblastoma in two Siamese fighting fish (*Betta splendens*). (Poster presentation) American College of Veterinary Pathologists meeting, San Antonio, TX, Nov 2008.

Books:

Kiupel M, Capen C, Miller M, Smedley. Histologic classification of tumors of the endocrine system of domestic animals, vol. XII. In: *World Health Organization International Histological Classification of Tumors of Domestic Animals*, ed. Schulman FY, Armed Forces Institute of Pathology, Washington, DC, 2008

Other Publications:

Hanson MA. Wednesday Slide Conference 2007-2008 Proceedings. Johnson TO, ed. Washington, DC: Armed Forces Institute of Pathology; 2008.

Projects:

1. Web-based distance learning in veterinary pathology
2. Feline pathology gross kodachrome study set
3. Lafora body disease in a Fennec fox
4. Ectopic adrenocortical tumors in ferrets
5. Feline C cell tumors and thyroid follicular cell tumors
6. DOD Veterinary Pathology Residency BRAC organization
7. Malignant pilomatricoma in dogs
8. Histologic, immunohistochemical and clinical characterization of peripheral nerve sheath tumors in cats
9. Rhesus Macaque normal histology study set
10. Spider Monkey normal histology study set
11. Equine, 1-day-old foal, normal histology study set
12. Striped bass normal histology study set
13. Long-tailed Pangolin normal histology study set
14. Compiled study set fish neoplasia: Archival tissue from Smithsonian National Zoo and AFIP
15. New Bolton Center and Philadelphia Zoo Kodachrome study set digital conversion
16. Feline adrenocortical carcinomas
17. PCR and viral sequencing of a novel herpesvirus in Alaska sea otters from the Exxon Valdez oil spill
18. Comparative pathology of nocardiosis in marine mammals
19. Pathogenesis of cardiomyopathy in dwarf and pygmy sperm whales
20. Multiple heterotopias on the mucocutaneous junction of a neonatal harp seal
21. Odontogenic neoplasms study set
22. Development of online educational content: integrated case problems
23. Effect of teriparatide and calcitonin on intertransverse process fusion in a rabbit model
24. Multiple angiokeratomas in a dog
25. Cardiac leiomyoma in a dog
26. Use of a GnRH antagonist to preserve ovarian function in mice receiving cyclophosphamide
27. Mouse efficacy testing of novel therapeutics against avian influenza
28. Comparative aspects of ectodermal dysplasia in the dog, human and tabby mouse
29. Porcine small intestine xenograft for rectovaginal fistula repair in a rabbit model.
30. Biological threat agents identification in clinical specimens using real-time fluorescent polymerase chain reaction (RTF-PCR)
31. Establishment of an animal model for generation of potent neutralizing human monoclonal antibodies against orthopoxviruses by immortalizing and cloning specific memory B cells
32. Development of protective *Burkholderia pseudomallei*- and *B. Mallei*-specific mouse monoclonal antibodies and human recombinant monoclonal antibodies-Part II. In vivo

- study
33. Development of bacteriophage vaccines capable of conferring protection against anthrax, plague and botulinum neurotoxin
 34. AFIP Division of Laboratory Animal Medicine (DLAM) Rodent and Rabbit Quality Assurance and Sentinel Program
 35. Instructions in care, handling and management of rodents and lagomorphs
 36. Protection efficiency of the affinity-improved and humanized *Burkholderia mallei*- and *Burkholderia pseudomallei*-neutralizing monoclonal antibodies
 37. Mouse efficacy testing of novel therapeutics against avian influenza

Collaborators:

Military:

1. DOD Military Working Dog Veterinary Service
2. Walter Reed Army Institute of Research
3. Walter Reed Army Medical Center
4. US Army Research Institute of Infectious Diseases
5. Uniformed Services University of the Health Sciences
6. Naval Medical Research Center

Civilian:

1. National Zoological Park, Washington, DC
2. Maryland State Diagnostic Laboratory, Frederick, MD
3. National Marine Fisheries Service
4. U.S. Fish and Wildlife Service
5. National Institutes of Health
6. Marine Mammal Center, Sausalito, CA
7. C.L. Davis DVM Foundation for the Advancement of Veterinary and Comparative Pathology
8. University of Pennsylvania, School of Veterinary Medicine, New Bolton, PA
9. New Jersey Marine Mammal Stranding Center, Brigantine, NJ
10. Southwest Foundation for Biomedical Research
11. National Ocean Service
12. IDEXX Veterinary Services
13. Sea World
14. Johns Hopkins University
15. University of California at San Diego
16. Antech Diagnostics
17. The Ohio State University
18. Iowa State University
19. The Hospital for Sick Children, Toronto, Canada
20. University of Minnesota College of Veterinary Medicine
21. Marshfield Laboratories, Division of Veterinary Pathology

PROFESSIONAL ACTIVITIES

Official Trips:

1. January 2008: The North American Veterinary Conference, Orlando, Florida, M Bonhage (Regular funds).
2. January 2008: Virginia-Maryland Regional College of Veterinary Medicine, Blacksburg, VA, C Christensen (USAREC).
3. March 2008: Descriptive Veterinary Pathology Course, University College of Dublin, Dublin, Ireland, JW Raymond and BH Williams
4. March 2008: CL Davis Foundation Gross Morbid Diseases of Animals Course, Bethesda, MD, M Hanson, E Lombardini, G Kinley, G Fletcher, T Bell, C Honnold, N Aziz, E Carroll, T Chance, W Culp, M Thompson, W Wilkins (AFIP).
5. April 2008: Plum Island, NY, Plum Island Animal Disease Center; Attended the Foreign Animal Disease Diagnostician Course. P Facemire (AFIP).
6. May 2008: 39th Annual Meeting of the International Association of Aquatic Animal Medicine, Rome, Italy, ML Fleetwood (Registry of Veterinary Pathology).

7. June 2008: Descriptive Veterinary Pathology Course, Bethesda, MD, B Lewis, M Hanson, E Lombardini, G Kinley, G Fletcher, T Bell, C Honnold, N Aziz, E Carroll, T Chance, W Culp, M Thompson, W Wilkins (AFIP).
8. June 2008: Society of Toxicologic Pathology Annual Meeting, San Francisco, CA, S Hahn (Registry of Veterinary Pathology).
9. July 2008: CL Davis Foundation General Pathology Course, St Pete Beach, FL, M Hanson, E Lombardini, P Facemire, C Christensen, T Johnson (AFIP).
10. August 2008: Pathology of Laboratory Animals Course, Bethesda, MD, M Hanson, E Lombardini, G Kinley, G Fletcher, C Schmitt, M Jefferson, T Bell, C Honnold, J Bearss, S Lacy, W Culp, E Carroll, N Aziz, M Thompson, W Wilkins (AFIP).
11. August 2008: Faculty, Pathology of Laboratory Animals and Current Laboratory Animal Science Seminar, M Bonhage, JW Raymond and BH Williams (AFIP).
12. August 2008: Annual Meeting of the Working Group on Marine Mammal Unusual Mortality Events, Washington, DC, ML Fleetwood (NMFS).
13. August 2008: General Pathology Course, St. Petersburg, FL, M Thompson, W Wilkins (AFIP).
14. August 2008: Resident Preceptorship site visit, University of Minnesota College of Veterinary Medicine, Veterinary Diagnostic Laboratory, St. Paul, MN, T Johnson (AFIP).
15. August 2008: CLASS/POLA, Bethesda, Maryland, M Bonhage (ARP).
16. September 2008: NCAB Conference, Ellicott City, Maryland, G Stones, R Jackson, J Pollock, M Cannon, S McNair, K Padgett (Regular Funds).
17. September 2008: ACVP Board Certification Examination, Ames, IA, E Carroll, N Aziz, T Chance, W Culp, M Thompson, W Wilkins (AFIP).
18. October 2008: Northeastern Veterinary Pathology Conference, Cobleskill, NY, G Kinley, G Fletcher, T Bell, C Honnold, T Chance (AFIP).
19. October 2008: Pathology Visions Conference, San Diego, CA, S Shaffer (Registry of Veterinary Pathology).
20. October 2008: AWIC (USDA) Workshop on Meeting the Information Requirements of the Animal Welfare Act, College Park, MD, B Lewis (no fee).
21. October 2008: Meeting the informational needs of the Animal Welfare Act Course, Beltsville, Maryland, M Bonhage (free).
22. November 2008: American College of Veterinary Pathologists 59th Annual Meeting, San Antonio, TX, M Hanson, E Lombardini, P Facemire, C Christensen, T Johnson, W Culp, M Thompson (AFIP).
23. November 2008: 59th Annual Meeting of the American College of Veterinary Pathologists, San Antonio, TX, FY Schulman, TP Lipscomb (ARP).
24. November 2008: American College of Veterinary Pathologists, San Antonio, S Hahn, S Shaffer (Registry of Veterinary Pathology).

Editorial Work:

1. Lombardini E. Reviewed 2009 edition of the OIE Manual of Diagnostic Tests for Aquatic Animals. World Organization for Animal Health (OIE)
2. Schulman FY. Editor, WHO International Histological Classification of Tumors of Domestic Animals
3. Schulman FY. Reviewed manuscripts on small animal diagnostic pathology for the Veterinary Pathology and the Journal of the American Veterinary Medical Association
4. Johnson TO, Editor. Wednesday Slide Conference 2007-2008 Proceedings. Armed Forces Institute of Pathology, Washington, DC, 2008
5. Johnson TO. Reviewed scientific manuscripts for *Veterinary Pathology*
6. Lipscomb TP. Reviewed manuscripts on marine mammal pathology for *Veterinary Pathology*
7. Fleetwood ML. Reviewed manuscripts for *Veterinary Dermatology* and the *Journal of Feline Medicine and Surgery*
8. Facemire PR. Reviewed 2008 edition of the USDA guide: Sample collection of West Nile Virus for the horse during necropsy. United States Department of Agriculture, USDA
9. Manuscript (Lewis B). "Nephroblastoma in two Siamese Fighting Fish," E Lombardini, M Law, submitted to *Veterinary Pathology*
10. Presentation (Lewis B). "*Trypanosoma cruzi* in a Chimpanzee," T Bell, Northeastern Veterinary Pathology Conference, Saratoga, NY, Oct 2008

11. Presentation (Lewis B). "Gastrointestinal stromal tumor in a Pacific walrus," G Kinley, Northeastern Veterinary Pathology Conference, Saratoga, NY, Oct 2008

Other contributions:

1. SL Hale. Judge, Young Investigator Award Competition in Toxicologic Pathology, American College of Veterinary Pathologists Annual Meeting, 2008.
2. FY Schulman. Judge, ACVP/AAVLD Diagnostic Travel Award, American College of Veterinary Pathologists Annual Meeting, 2008.

Distinguished honors:

1. October 2008: University of Delaware, College of Agriculture and Natural Resources Distinguished Alumni Award, Newark, DE, W Culp
2. November 2008: CL Davis Student Scholarship Award, American College of Veterinary Pathologists, San Antonio, TX, M Thompson



Florabel G. Mullick, MD, ScD (Hon), FCAP, SES
Chair
Date of Appointment — 27 June 1996

DEPARTMENT OF ENVIRONMENTAL AND INFECTIOUS DISEASE SCIENCES

The Department of Environmental and Infectious Disease Sciences, established in 2004 by merging the Department of Environmental and Toxicologic Pathology with the Department of Infectious and Parasitic Diseases Pathology, brought together experts in infectious and tropical diseases, microbiology, molecular pathobiology, AIDS and emerging infections, environmental pathology, environmental toxicology, chemical microscopy, and biophysical toxicology. The Department conducts consultation, education, and research in global diseases; studies environmental factors causing negative health effects and organisms that cause a specific illness; and studies threats and diseases that affect our deployed soldiers and their health upon return.

ORGANIZATION

- Office of the Chair
- Division of Environmental Pathology, Michael R. Lewin-Smith, MD, Chief
- Division of Environmental Toxicology, Victor F. Kalasinsky, PhD, Chief
- Division of Biophysical Toxicology, Jose A. Centeno, PhD, Chief
- Division of Chemical Microscopy, Hazel Marie Jenkins, HT, ASCP, Chief
- Division of Infectious and Tropical Diseases Pathology, Mary K. Klassen-Fischer, MD, Chief
- Division of Microbiology, Mina Izadjoo, PhD, Chief
- Division of Molecular Pathobiology, Mina Izadjoo, PhD, Chief
- Division of AIDS Pathology, Ann M. Nelson, MD, Chief

STAFF – OFFICE OF THE CHAIR

Medical

Florabel G. Mullick, MD, ScD, FCAP, Chair
Douglas J. Wear, MD, Associate Chair for Research and Education

Administrative

Ridgely L. Rabold, AAS, Department Administrator, PGI Program Manager
Kim Knight, Administrative Officer
Ana Erica Revelo, Administrative Assistant

Individual division reports cover achievements in consultation, education and research.

The creation of the INTOX Data Center consolidates all our military-related databases, facilitating the follow-up of war-related diseases in military personnel.

In 2008, Dr. Mullick assisted in the consultation mission of the department by signing 394 cases. For further activities please see the section under The Director.

DIVISION OF ENVIRONMENTAL PATHOLOGY



Michael R Lewin-Smith, MD
Chief
Date of Appointment – 1 November 2001

STAFF

Medical:

Michael R. Lewin-Smith, MD, Chief
Gary L. Cohen, MD, PhD, LtCol, USAF, MC, Pathologist

Scientific & Administrative:

Albin L. Moroz, MS, Analyst/Programmer
Tain-Lin Huang, MS, ME, Programmer, level 2
Roderick F. Herring, Medical Research Technician, level 2
Katherine Tiong, Medical Data Clerk

IMPACT

The Division of Environmental Pathology conducts consultation, education, and research in environmental pathology, environmental toxicology, and drug-induced pathology. It studies ways to develop, and apply toxicological techniques for analyzing human and animal tissue, to determine causes of injury and disease. Pathology consultations for the identification of unknown materials in tissue are performed by Division staff working in close collaboration with the Division of Environmental Toxicology. The Division provides medical and pathology support to the Divisions of Environmental Toxicology, Chemical Microscopy, and Biophysical Toxicology, within the Department of Environmental and Infectious Disease Sciences, and provides intramural consultative support to the other Departments of the AFIP.

The overwhelming majority of the Division's work in 2008 involved military-related consultation, education, and research. Consultative activity involved support of military pathologists deployed overseas, and support of military pathologists and clinicians in the United States. The bulk of the remaining consultations were performed for the Department of Veterans Affairs, for patients whose specimens have been submitted for inclusion in the AFIP's military-related registries which are maintained by the Division. Consultation reports were issued for these patients when requested, in collaboration with the relevant expert sub-specialty departments of the AFIP.

The Division Staff completed 5,147 cases in 2008, an increase of 174 cases (3.5%) over 2007. In addition 442 cases were co-signed by Dr. Lewin-Smith for the Divisions of Chemical Microscopy, Environmental Toxicology, and Biophysical Toxicology. This was an increase of 185 (72%) over 2007.

In May 2008, Dr. Lewin-Smith was presented the Department of the Army Superior Civilian Service Award in recognition of his leadership and expertise in Environmental Pathology, and his record of accomplishments while Chief of the Division of Environmental Pathology between October 1, 2006 and April 14, 2008.

Dr. Lewin-Smith was promoted to the rank of Associate Clinical Professor of Pathology at the George Washington University School of Medicine and Health Sciences, in May, 2008.

In March 2007, a massive pet food recall was announced, because of acute renal failure arising in domestic cats and dogs. Melamine contamination of wheat gluten, a component of the pet food was identified as one of the possible contaminants leading to the nephrotoxicity. In 2008 melamine in infant milk formula and other milk-containing products manufactured in China was suspected of making thousands of infants sick and of some deaths. Dr. Lewin-

Smith and Dr. Kalasinsky (Division of Environmental Toxicology), added to their work in dogs in 2007 with a published abstract on the identification of melamine-containing crystals in cats, relating to the 2007 FDA pet food recall. In addition the 2007 work in dogs was published in *Veterinary Pathology* in 2008.

In view of the possibility of similar kidney stones to those identified in domestic animals in 2007 in the US, now arising in human cases, Division staff submitted a letter to the editor of *Archives of Pathology and Laboratory Medicine* in late 2008, which has been accepted for publication.

Working in collaboration with the Division of Environmental Toxicology, and the Department of Orthopedic Surgery, Walter Reed Army Medical Center (WRAMC), Division staff (Dr. Lewin-Smith) analyzed tissue received from wounded soldiers who had developed a particular complication associated with use of a certain suture material. As a result of this work the suture is no longer used for the surgical indication involved. Thus AFIP directly contributed to an improvement in the surgical care of wounded soldiers. This work was accepted for publication in the *Journal of Bone and Joint Surgery* in 2008.

Since the early days of Operation Iraqi Freedom in 2003, staff from the Divisions of Environmental Pathology and Environmental Toxicology have been assisting the Department of Dermatopathology, WRAMC in the analysis of retained fragments removed from combat wound sites. A paper summarizing this work was published in *Dermatologic Surgery* in 2008.

Consultation work from the National Institutes of Health for the characterization of materials present in sections of brain in patients suffering from specific types of speech pathology was performed by Division Staff (Dr. Lewin-Smith), Dr. Kalasinsky of the Division of Environmental Toxicology, and staff from the Department of Neuropathology. This work resulted in an article published in hard copy in *Brain* in 2008.

A new research project was established in 2007 with the Centers for Disease Control in Atlanta, GA involving the elucidation of the cause or causes of the condition referred to as Morgellons. Working in collaboration with the Department of Dermatopathology, AFIP, significant progress towards completing this project was made in 2008.

Progress was also made in the new research protocol investigating the AFIP's experience with squamous cell carcinoma of the tonsil with particular reference to Vietnam Veterans.

The Division staff had 3 scientific papers and 3 scientific abstracts published in 2008.

The Division maintains several Registries of anatomic pathology material from military and militarily-related cohorts including former Prisoners of War, Vietnam War/Agent Orange veterans, and 1990-1991 Kuwait/Persian Gulf War veterans. In 2003, new registries for military personnel deployed to Iraq, and Afghanistan were initiated and continued to grow during 2008. In 2004 an AFIP Registry was developed in collaboration with the Division of Tropical and Infectious Disease Pathology for Leishmaniasis, which also added cases in 2008.

Division staff, (AL Moroz) directs the Division's medical informatics activities. He is the architect of the AFIP International Toxicology Data Center (ITDC). This is designed to support the military medical mission. It includes Registries, Special Studies and reference databases. At the end of 2008 the ITDC contained over 80,000 reports. He established data hygiene methodologies that validate and update data as new or missing information becomes available. This yields the most accurate and complete information possible. As an adjunct to the AFIP Pathology Information System (PIMS), the ITDC contains detailed information which is cohort focused. This makes it an invaluable tool for research, ad hoc queries and Veterans Administration inquiries.

Division staff, (TL Huang) continued development of the Division's ITDC. He improved quality control and added numerous management reports. He added an Embedded Fragments Registry. He also continued to modernize the entire database system. He continued to apply current "best practices," including database mirroring and automated e-mail notification of server problems.

CONSULTATION

In addition to Division staff, (Dr. Lewin-Smith and Dr. Cohen), Dr. Mullick and Dr. Kalasinsky signed out cases for the Division of Environmental Pathology in 2008.

The Division maintains the Registry for Former Prisoners of War (POWs), which contains histopathologic specimens dating back to 1945. The Registry was established in 1980 in a Veterans Administration (VA) circular. Since then, approximately 34,000 pathology reports from approximately 15,000 former POWs have been included in the registry. During 2008,

478 new POW submissions were received including those with no report required. The Division processed 220 fewer POW submissions in 2008 than in 2007. This reflects reduced numbers of surviving World War II former POWs.

The Division also maintains the Kuwait/Persian Gulf Registry for pathology specimens from veterans of the 1990-1991 Persian Gulf War. This Registry is supported by funding from the Department of Defense, and contains pathologic material contributed by Military Medical Treatment Facilities and VA Medical Centers. At the end of 2008 the Registry contained information from 11,469 Gulf War Veterans (GWVs). During 2008, 1,779 new Kuwait/Persian Gulf Registry submissions were added to the Registry including those with no report required. The Division received 285 more Kuwait/Persian Gulf submissions in 2008 than in 2007.

A special study conducted in the 1980s for Vietnam War veterans formed the basis for the AFIP Registry for Agent Orange, which is maintained by the Division. Additional cases have been received since then. Autopsy contributions, received mainly from VA Medical Centers, are periodically received for dioxin evaluation, which has been performed as part of a research protocol by the Division of Environmental Toxicology. In 2008, 1,144 Agent Orange Registry submissions were added including those with no report required. The Division added 358 more Agent Orange Registry submissions in 2008 than 2007.

The Afghanistan Service Registry and the Operation Iraqi Freedom Registry are geographically-based registries for patients from the OIF and OEF theaters of operations. These registries receive voluntary contributions from US Military and Veterans Administration medical facilities. The Registry contained information from 5,311 patients at the end of 2008. The Division added 1,493 submissions to these registries in 2008, a decrease of 31 submissions compared to 2007.

The Leishmaniasis Registry is a disease specific registry. It was established in collaboration with the Division of Tropical and Infectious Disease Pathology to monitor leishmaniasis cases from Southwest Asia from Operation Enduring Freedom (OEF), and Operation Iraqi Freedom (OIF). It includes patients from Afghanistan, Iraq and countries in Southwest Asia.

There were no new accessions for the Ionizing Radiation /Radiation Biology Registry in 2008. Since 2002, the AFIP has been without a radiation biology pathologist.

The Division also supports the Veterans Administration Claims process. Division staff completed 3 Veterans Administration Claims cases in 2008, all relating to Agent Orange.

The Department of Environmental & Infectious Disease Sciences has developed the International Toxicology Data Center (ITDC). The former INTOX database was re-named as the ITDC and now is an umbrella for several databases, which have been separated to more easily identify related cases. Division staff have been actively involved with the development of the new data center, and in re-designing the computerized records for the Tissue Reaction to Drugs (TRD) Registry. The registries for Agent Orange, Former Prisoners of War, Kuwait/Persian Gulf and Radiation Pathology are databases in the ITDC. Division staff have also worked on the material for the Breast Explant Registry, Depleted Uranium Registry and Chronic Arseniasis Registry. A new database for Environmental Agents has been created for cases previously included in the TRD registry but which are not recognized as conventional drugs, diagnostic or therapeutic agents or alternative therapies. The reorganization continued in 2008 to improve the utility of the data for future research, and for collaborative work particularly with military and other government agencies.

DIAGNOSTIC CONSULTATION

<i>Cases</i>	<i>Completed</i>
Military	807
Army (801)	
Navy (2)	
Air Force (4)	
Federal	4,148
VA (4,137)	
OFA (11)	
Civilian	9
Interdepartmental	183
Total	5,147

Division staff (MR Lewin-Smith) co-signed 437 cases with the Division of Chemical Microscopy, (301 Army, 57 Air Force, 77 VA, 2 CIV), in 2008.

Division staff (MR Lewin-Smith) co-signed 4 cases with the Division of Environmental Toxicology (1 Army, 2 VA, 1 USPHS), in 2008.

Division staff (MR Lewin-Smith) co-signed 1 case with the Division of Biophysical Toxicology (1 CIV), in 2008.

Division Staff, (MR Lewin-Smith) reviewed 235 quality assurance cases for the Divisions of Environmental Pathology, Environmental Toxicology, and Chemical Microscopy in 2008.

EDUCATION

Teaching:

Medical student pathology course small group teaching, Uniformed Services University of the Health Sciences, Bethesda, MD, (Dr. Cohen).

Trainees:

Division staff (MR Lewin-Smith) assisted in mentoring two AFIP/ARP Summer Intern Program students.

Department Staff (MR Lewin-Smith) earned 59 hours of AMA PRA category 1/ACCME credit for continuing medical education in 2008.

Faculty Appointments:

1. The George Washington University School of Medicine and Health Sciences, Associate Clinical Professor of Pathology, (MR Lewin-Smith).
2. Georgetown University Medical Center, Adjunct Assistant Professor, Department of Pathology, (MR Lewin-Smith).
3. Uniformed Services University of the Health Sciences, adjunct Assistant Professor of Pathology, Department of Pathology, (GL Cohen).

Presentations and Seminars:

1. April 2008: Dr. Lewin-Smith presented a lecture entitled "Melamine-containing crystals in renal tissue from domestic animals: Histological, histochemical, and chemical analytical features." at AFIP Weekly Professional Staff Conference, Washington, DC.
2. April 2008: Dr. Cohen presented a lecture entitled "The types of microcalcifications seen in histopathology specimens." At AFIP Weekly Professional Staff Conference, Washington, DC.
3. May 2008: Dr. Lewin-Smith presented a lecture entitled "Characterization of unidentified material in Pathology Specimens: I : Medical Foreign Bodies." At the Department of Pathology, Georgetown University Medical Center, Washington DC.

RESEARCH

Journal Articles:

1. Simonyan K, Tovar-Moll F, Ostuni J, Hallett M, Kalasinsky VK, Lewin-Smith MR, Rushing EJ, Vortmeyer AO, Ludlow CL. Focal white matter changes in spasmodic dysphonia. *Brain*. 2008;131(2):447-459. (Brain Advance Access originally published online on December 14, 2007).
2. Maggio KL, Kalasinsky VF, Lewin-Smith MR, Mullick FG. Wound fragments from cutaneous sites of U.S. military personnel deployed in Operation Iraqi Freedom: clinical aspects and pathologic characterizations. *Dermatol Surg*. 2008;34:475-482.
3. Thompson ME, Lewin-Smith MR, Kalasinsky VF, Pizzolato KM, Fleetwood ML, McElhaney MR, Johnson TO. Characterization of melamine-containing and calcium oxalate crystals in three dogs with suspected pet food-induced nephrotoxicosis. *Vet Pathol*. 2008;45:417-426.

Abstracts:

1. Lewin-Smith MR, Carroll EE, Kalasinsky VF, Johnson TO, Mullick FG. Characterization of melamine-containing crystals and calcium oxalate crystals in the kidneys of two domestic cats by histopathology, infrared spectroscopy and scanning electron microscopy with energy dispersive X-ray analysis. *Modern Pathology*. 2008; 21 (Supplement 1): 7A, (15).
2. Rassaei N, Shilo K, Lewin-Smith MR, Kalasinsky VF, Klassen-Fischer MK, Franks TJ. A case of pulmonary zygomycosis associated with calcium oxalate deposition within bronchial cartilage. *Modern Pathology*. 2008; 21 (Supplement 1): 9A, (24).

3. Lewin-Smith Environmental & Infectious Disease SciencesMR, Kalasinsky VF, Moezzi J, Mullick FG. Retained copper wound fragment presenting as a soft tissue mass 38 years after injury: histopathological and chemical analytical characteristics. *Histopathology*. 2008; 53 (Suppl. 1): 116, (262).

Projects:

Division staff (MR Lewin-Smith), contributed an on-line chapter on the pathology of polyvinyl pyrrolidone (PVP) for an on-line Soft Tissue Pathology text edited by C. Fisher.

The Division maintained the following AFIP approved research projects in 2008.

Principal Investigator: MR Lewin-Smith

1. A histopathologic study of hematologic specimens from Persian Gulf War military veterans.
2. The timing of hepatitis C seroconversion in a cohort of U.S. Military Gulf War veterans (GWVs).
3. Pathology of the lung in a cohort of former Prisoners of War.
4. Update of Skin pathology in Gulf War Veterans
5. Birefringence of helminths in hematoxylin & eosin-stained human tissue sections.
6. Squamous cell carcinoma of the tonsil, the Armed Forces Institute of Pathology Experience 1970-2005, with reference to military service in the Vietnam War.
7. Evaluation of exogenous material in debrided tissue from wound sites of US military personnel treated with vacuum-assisted dressings.
8. A review of the neuromuscular pathology of Gulf War veterans.
9. Diagnostic investigation and interpretation of an unexplained dermatopathy (Morgellons).

Collaborators:

Military:

1. KC Holtzmuller, COL (ret.), USA, MC, Hepatic disease in U.S. military Gulf War veterans (GWVs).
2. Kurt L Maggio, LTC, USA, MC, WRAMC, Identification of material from wound sites in U.S. military personnel.
3. LJ Nesti, B Freedman, A Aragon, USA, MC, WRAMC, Evaluation of wound sites treated with vacuum-assisted dressing.
4. AW Mack, CPT, USA, MC, WRAMC, Analysis of orthopedic suture material.

Other Federal Agencies:

1. ML Pearson, MD, Centers for Disease Control and Prevention, Atlanta, GA, Morgellons research.
2. K Simonyan, MD, PhD, National Institutes of Health, Bethesda, MD, Neuropathology of spasmodic dysphonia.

Civilian:

1. Mr. C Watkins & Mr. S Stofko, Prisoner of War Information System (POWIS), Pathology of the lung in former Prisoners of War.

Interdepartmental:

1. E Rushing, COL, USA, MC, Neuromuscular pathology of Gulf War veterans.
2. L Rabin, MD, Hepatic disease in U.S. military Gulf War veterans.
3. J Hallman, MD, Dermatopathology in military Gulf War veterans and Morgellons research
4. G Lupton, MD, Dermatopathology, Morgellons research
5. D Heffner, MD, Squamous cell carcinoma of the tonsil in Vietnam veterans
6. R Neafie, MS, Birefringence of helminths pathogenic to humans
7. N Rassaei, M.D., pulmonary zygomycosis with calcium oxalate
8. ME Thompson, CPT, USA, VC, Melamine nephrotoxicity in dogs
9. EE Carroll, MAJ, USA, VC, Melamine nephrotoxicity in cats
10. TO Johnson LTC, USA, VC, Melamine nephrotoxicity in animals

PROFESSIONAL ACTIVITIES

Official Trips:

1. March 2008: United States & Canadian Academy of Pathology, Annual Meeting, Denver, CO, (MR Lewin-Smith).
2. May 2008: Georgetown University Medical Center, Department of Pathology, Washington, DC, (MR Lewin-Smith).

Offices/Committee Memberships in National or International Societies:

Extramural: None.

Intramural:

1. Ash Library committee, AFIP, member, (MR Lewin-Smith).
2. Institutional Review Board, AFIP, member, (MR Lewin-Smith).
3. Biosafety committee, AFIP, member (GL Cohen)

New Missions:

A new endeavor started in 2006 to accession archived histopathological material from overseas military medical treatment facility(s) for inclusion in the AFIP Operation Iraqi Freedom Registry got underway in 2007. Almost 1,800 accessions had been added by the end of 2008.

Work was commenced in collaboration with the CDC and Kaiser Permanente in their investigation of Morgellons which is due to be completed in 2009.

DIVISION OF ENVIRONMENTAL TOXICOLOGY



Victor F. Kalasinsky, PhD
Chief
Date of Appointment – 25 September 1989

STAFF

Scientific:

Victor F. Kalasinsky, PhD, Chief
Natalya Merezhinskaya, PhD, Research Biologist
Lynn M. Blubaugh, BS, Laboratory Technician
Laura E. Burry, BS, Laboratory Technician
Stacy L. Strausborger, MS, Laboratory Manager
Albin L. Moroz, MS, Computer Program Analyst
Jesse O. Tristan, BS, Computer Applications Specialist

Administrative

Kim M. Ries, Administrative Officer

IMPACT

The Division conducts consultation, education, and research in environmental toxicology. Physical and chemical procedures for analyzing human and animal tissue and determining causes of injury are constantly being developed or improved. Potentially toxic unknowns are identified using infrared and Raman spectroscopy and scanning electron microscopy with energy-dispersive x-ray analysis or separated using gas chromatography mass spectrometry or high performance liquid chromatography.

Military crime investigators were assisted by identifying chemicals found in confiscated materials, and USACHPPM, WRAMC, the OAFME, and in-theater combat support hospitals submitted specimens from patients serving in Iraq. Unknown materials (possibly adjuvants) located in tissue biopsies taken from patient vaccination sites were analyzed as well.

Working with the Division of Environmental Pathology and the Departments of Orthopedic Surgery and Dermatology at WRAMC, it has been possible to identify suture materials, tattoo inks, blast fragments, and other materials in tissue. One article describing this work was published in 2008, and another was accepted.

Melamine-containing crystals were identified in kidney tissue from dogs and cats exposed to recalled contaminated pet foods. The resulting 2008 publication is a sentinel reference as melamine contamination in other foods, especially baby formula, is being studied.

Additional work with the Department of Veterinary Pathology involved identifying unknown crystals in tissue specimens from other animals, and one such study has led to another publication. Very few military facilities can combine analytical capabilities with veterinary medicine in this way.

In collaboration with CDC and the Division of Environmental Pathology, foreign materials associated with the condition known as Morgellons were studied and identified. Review of the data with CDC will result in recommendations and a final report.

An on-line database, the AFIP-DoD-GEIS Directory of Public Health Laboratory Services was maintained in the Division. Monthly newsletters were prepared highlighting important news related to emerging infections, and a "flat file" of pertinent data on CD was prepared for distribution to authorized personnel.

Working through the laboratory sub-group of the JESWG (Joint Environmental Surveillance

Work Group), it was possible to construct an on-line database of environmental laboratory capabilities within DoD. These capabilities were used in the JRO's (Joint Requirements Office) concept for a mobile analytical laboratory.

New molecular diagnostics equipment has been purchased and installed in newly redesigned laboratory space. This includes PCR workstations, conventional and real-time PCR systems, a sequencer, UV-visible spectrophotometers, and a photodocumentation system.

Protocols for the immunohistological identification of West Nile virus in FFPE human and animal tissues has been successfully applied to control cases at the Institute. PCR-based methodology was transferred to the Division of Scientific Laboratories for future use in diagnostic pathology.

CONSULTATION

By using gas chromatography, mass spectrometry, liquid chromatography, Fourier transform infrared and Raman spectrometry, and scanning electron microscopy with energy-dispersive x-ray analysis, it was possible to identify or characterize unknown chemical substances in 106 cases. These included plastics, therapeutic drugs, melamine crystals, tattoo materials, talc, inhaled particulates, and physiological deposits.

The Division performed satisfactorily in College of American Pathologists (CAP) Proficiency Tests in 2008.

<i>Cases</i>	<i>Completed</i>
Military	629
Army (504)	
Navy (4)	
Air Force (121)	
Federal (VA)	149
(VA) (135)	
(USPHS) (14)	
Civilian	4
Interdepartmental	68
Total	850

EDUCATION

Trainees:

Three high school students received training in our division during summer 2008.

Scientific Appointments:

Guest Researcher, National Institute of Diabetes, Digestive, and Kidney Diseases, NIH, VF Kalasinsky.

Continuing Education:

1. February 2008: Waters Corporation Training Workshop: MALDI-TOF Operation Milford, CT, SL Strausborger (ARP).
2. June 2008, Smiths Corporation Training Workshop: Fundamentals of FT-IR Spectrometry, Stamford, CT, LM Blubaugh, HM Jenkins
3. September 2008, Agilent Training Workshop: GC/MSD Troubleshooting and Maintenance, Atlanta, GA, LE Burry (ARP).

Presentations:

1. February 2008: New Orleans, LA, Meeting of the Society of Armed Forces Medical Laboratory Scientists, "The Department of Defense (DoD) Internet-Accessible, Global Directory of Public Health Laboratory Services," LM Blubaugh, LE Burry.
2. March 2008: Denver, CO, United States and Canadian Academy of Pathology annual meeting, "Characterization of melamine-containing crystals and calcium oxalate crystals in the kidneys of two domestic cats by histopathology, infrared spectroscopy and scanning electron microscopy with energy dispersive X-ray analysis," MR Lewin-Smith.
3. March 2008: Denver, CO, United States and Canadian Academy of Pathology annual meeting, "A case of pulmonary zygomycosis associated with calcium oxalate deposition within bronchial cartilage," MR Lewin-Smith.

4. March 2008: Atlanta, GA, International Conference on Emerging Infectious Diseases, "DoD Directory of Public Health Laboratory Services," LE Burry, SL Strausborger.
5. April 2008: Washington, DC, AFIP Professional Staff Conference, "Immunohistological and PCR-based identification of West Nile virus in FFPE human and animal tissues," N Merezhinskaya.
6. August 2008: Albuquerque, NM, Force Health Protection Conference, "The Department of Defense (DoD) Internet-Accessible, Global Directory of Public Health Laboratory Services and Joint Occupational and Environmental Surveillance Laboratory Compendium," LM Blubaugh, SL Strausborger (ARP).
7. October 2008: Athens, Greece, 27th Congress of the International Academy of Pathology, "Retained copper wound fragment presenting as a soft tissue mass 38 years after injury: histopathological and chemical analytical characteristics," FG Mullick.

RESEARCH

Journal Articles:

(Five articles were published, three articles were accepted, and one other was submitted)

1. Simonyan K, Tovar-Moll F, Ostuni J, Hallet M, Kalasinsky VF, Lewin-Smith MR, Rushing EJ, Vortmeyer AO, Ludlow CL. Focal white matter changes in spasmodic dysphonia. *Brain*. 2008;131(2):447-459. Brain Advance Access originally published on-line on December 14, 2007.
2. Maggio KL, Kalasinsky VF, Lewin-Smith MR, Mullick FG. Wound fragments from cutaneous sites of U.S. military personnel deployed in Operation Iraqi Freedom: Clinical aspects and pathologic characterizations. *Dermatol Surg*. 2008;34(4):475-482. (Epub 2008 Jan 31.)
3. Thompson ME, Lewin-Smith MR, Kalasinsky VF, Pizzolato KM, Fleetwood ML, McElhaney MR, Johnson TO. Characterization of melamine-containing and calcium oxalate crystals in three dogs with suspected pet food-induced nephrotoxicosis. *Vet Pathol*. 2008;45(3):417-426.
4. Stacy BA, Santoro M, Morales JA, Huzella LM, Kalasinsky VF, Foley A, Mettee N, Jacobson ER. Renal oxalosis in free-ranging green turtles *Chelonia mydas*. *Dis Aquat Organ*. 2008;80(1):45-49.
5. Chiry O, Fishbein WN, Merezhinskaya N, Clarke S, Galuske R, Magistretti PJ, Pellerin L. Distribution of the monocarboxylate transporter MCT2 in human cerebral cortex: an immunohistochemical study. *Brain Res*. 2008;1226:61-69. (Epub 2008 Jun 18)

Abstracts:

1. Lewin-Smith MR, Carroll EE, Kalasinsky VF, Johnson TO, Mullick FG. Characterization of melamine-containing crystals and calcium oxalate crystals in the kidneys of two domestic cats by histopathology, infrared spectroscopy and scanning electron microscopy with energy dispersive X-ray analysis. *Mod Pathol*. 2008; 21(Suppl 1):7A, (15).
2. N Rassaei, K Shilo, M Lewin-Smith, VF Kalasinsky, MK Klassen-Fischer, TJ Franks. A case of pulmonary zygomycosis associated with calcium oxalate deposition within bronchial cartilage. *Mod Pathol*. 2008; 21(Suppl 1):9A, (24).
3. Kalasinsky VF, Tristan JO, Strausborger SL, Blubaugh L, Burry L, Gaydos JC, MacIntosh VH, Johnston DS, Mullick FG. The Department of Defense (DoD) Internet-Accessible, Global Directory of Public Health Laboratory Services. Book of Abstracts of the Society of Armed Forces Medical Laboratory Scientists, New Orleans, LA, February 10 - 14, 2008.
4. Kalasinsky VF, Tristan JO, Strausborger SL, Blubaugh L, Burry L, Gaydos JC, MacIntosh VH, Johnston DS, Mullick FG. DoD Directory of Public Health Laboratory Services. Book of Abstracts of the International Conference on Emerging Infectious Diseases, Atlanta, GA, March 17-19, 2008.
5. Kalasinsky VF, Tristan JO, Strausborger SL, Blubaugh L, Burry L, Gaydos JC, MacIntosh VH, Johnston DS, Mullick FG. The Department of Defense (DoD) Internet-Accessible, Global Directory of Public Health Laboratory Services and Joint Occupational and Environmental Surveillance Laboratory Compendium. Book of Abstracts of the Force Health Protection conference, Albuquerque, NM, August 11-14, 2008.
6. Lewin-Smith MR, Kalasinsky VF, Moezzi J, Mullick FG. Retained copper wound fragment presenting as a soft tissue mass 38 years after injury: histopathological and chemical analytical characteristics. *Histopathology*. 2008;53(Suppl. 1):116, (262).

Projects

1. A histopathologic study of skin biopsy specimens from Persian Gulf War military veterans.
2. A review of the neuromuscular pathology of Gulf War veterans.
3. A histopathologic study of Gulf War veterans potentially exposed in Khamisiyah.
4. Histopathologic review and chemical analysis of autopsy material from the Agent Orange Registry.
5. Immunohistological and PCR-based identification of West Nile virus in FFPE human and animal tissues.

In Gulf War-related activities, the division still participates in the DoD's Comprehensive Clinical Evaluation Program (CCEP). AFIP is charged with the long-term storage of blood and serum specimens collected from Gulf War veterans and their families who are reporting symptoms that might be related to service in the Gulf region.

Collaborators:

Military/Federal:

1. IW Levin, NIH: Vibrational imaging of tissue samples.
2. KL Maggio, WRAMC: Blast injuries in military personnel.
3. JC Gaydos, Global Emerging Infections System, Silver Spring, MD: DoD Directory of Public Health Laboratory Services.
4. DA Johnston, U.S. Army Center for Health Promotion and Preventive Medicine, Aberdeen, MD: DoD Environmental Laboratory Compendium.
5. JM Heller, U.S. Army Center for Health Promotion and Preventive Medicine, Aberdeen, MD: Deployment surveillance of active duty U.S. troops.
6. KS Kalasinsky, Division of Microbiology, AFIP: Infrared and Raman spectroscopic characterization of microorganisms.
7. M Fleetwood, TO Johnson, Department of Veterinary Pathology, AFIP: Identification of unknown materials in animal tissue.
8. AW Mack, WRAMC: Analysis of orthopedic suture material.
9. LJ Nesti, B Freedman, A Aragon, WRAMC: Evaluation of wound sites treated with vacuum-assisted dressing.
10. S Zaki, Centers for Disease Control and Prevention, Atlanta, GA: Detection of West Nile virus in pathology specimens using PCR and immunohistochemistry.

Civilian:

11. O Chiry, Max Planck Institute for Brain Research, Frankfurt, Germany: Preparation of polyclonal antibodies against monocarboxylate transporters.
12. L Pellerin, Université de Lausanne, Lausanne, Switzerland: Expression of monocarboxylate transporters in human tissues and prevalence of mutations in MCT1 gene in European populations.
13. K Kivisto, Medical School, University of Tampere, Tampere, Finland: Expression of monocarboxylate transporters in human tissues and prevalence of mutations in MCT1 gene in European populations.

PROFESSIONAL ACTIVITIES

Official Trips

1. January 2008: Global Emerging Infections System, State of GEIS Conference, Rockville, MD, VF Kalasinsky.
2. February 2008: Society of Armed Forces Medical Laboratory Scientists Conference, New Orleans, LA, LM Blubaugh, LE Burry (ARP).
3. February 2008: Waters Corporation Training Workshop: MALDI-TOF Operation Milford, CT, SL Strausborger (ARP).
4. February 2008: American Academy of Forensic Sciences conference, Washington, DC, SL Strausborger.
5. March 2008: Joint Environmental Surveillance Work Group, Hampton, VA, VF Kalasinsky.
6. March 2008: International Conference on Emerging Infectious Diseases, Atlanta, GA, LE Burry, SL Strausborger (ARP).
7. June 2008: Smiths Corporation Training Workshop: Fundamentals of FT-IR Spectrometry, Stamford, CT, LM Blubaugh, HM Jenkins
8. August 2008: Joint Environmental Surveillance Work Group, Albuquerque, NM, VF Kalasinsky.

9. August 2008, Force Health Protection Conference, Albuquerque, NM, LM Blubaugh, SL Strausborger (ARP).
10. September 2008, Agilent Training Workshop: GC/MSD Troubleshooting and Maintenance, Atlanta, GA, LE Burry (ARP).

Manuscripts Reviewed:

VF Kalasinsky:

1. *Applied Spectroscopy* (1)
2. *Spectrochimica Acta* (3)
3. *International Journal of Experimental Pathology* (1)

Committees:

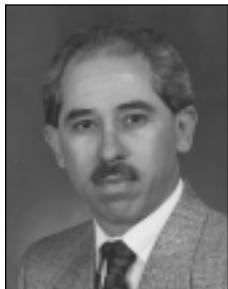
Intramural:

1. Safety Committee, AFIP – VF Kalasinsky
2. Biosafety Committee, AFIP – VF Kalasinsky
3. Institutional Animal Care and Use Committee (IACUC), AFIP – VF Kalasinsky

Extramural:

1. JRO Mobile Analytical Laboratory Integrated Concept Team (ICT) – VF Kalasinsky
2. Joint Environmental Surveillance Work Group, Tri-Service Laboratory Sub-Group (JESWG/TSLSG) – VF Kalasinsky

DIVISION OF BIOPHYSICAL TOXICOLOGY



José A. Centeno, MSc, PhD, FRSC
Chief

Date of Appointment: October 2001

STAFF

Scientific

José A. Centeno, MSc, PhD, FRSC, Chief , Supervisory Research Scientist
Ling Zhang, PhD, Research Chemist and Technical Laboratory Manager
Gijsbert van der Voet, PhD, Fellow in Toxicology (ARP)
(A) Elisa Fornero, PhD, Postdoctoral Fellow (ARP)
Simina Lal, BS, MS, Environmental Chemistry Technician (ARP)
Hanna Xu, BS, MS, Environmental Chemistry Technician (ARP)
Correa, Larry L. HMC, Research Assistant and NCIO, U.S. Navy
Dalyan, Mild E. HM2, Research Assistant, U.S Navy

IMPACT:

The Division of Biophysical Toxicology conducts consultation, education, and research in environmental and biophysical toxicology, environmental health, and bio-inorganic analysis of toxic metals, and foreign materials. The division is tasked with the development of chemical and biophysical techniques for the characterization of inorganic and foreign materials in human and other animal tissues, with particular emphasis on elemental composition, chemical and toxicological speciation of trace and toxic metals. This year, the division accomplished the following tasks, objectives, and milestones:

1. Concerning the division's research, consultation and analytical toxicology programs on Depleted Uranium (DU) Testing and Embedded Metal Fragment Registry Programs:
 - The division continues to provide analytical and archival support as part of the AFIP Depleted Uranium (DU) Testing and Registry Program. This DU program consists of archival materials (tissues, urine, blood, serum, semen, and removed fragments), the development of central analytical laboratory core facility dedicated to the analysis of total and isotopic uranium ratio in biological tissues and fluids, and a biological surveillance program to monitor potential cases of DU exposure within the three Services. The DU Registry was established in collaboration with the DU Clinical Follow-up Program at the Baltimore VAMC in 2003, and it provides archival and chemical analysis for all the services of the U.S. Armed Forces including Army, Navy, Air Forces and U.S. Marines, and Veterans Affairs Administration. In 2008, the DU Registry consisted of over 4,200 archived specimens from the DU Biological Surveillance Program and VA Clinical Follow-up Program. The Registry is maintained by funds obtained from the VA Baltimore DU Program. This year the division completed the analysis of uranium for over 540 urine, tissues and related biological specimens.
 - As one of the three DoD labs tasked with the analysis, characterization and archival of wound fragments removed from DoD injured personnel, the Division of Biophysical Toxicology has established the AFIP Registry on Embedded Metal Fragments. The implementation of this EMR Registry addresses the requirements established by the recently approved Health Affairs Policy requiring the chemical analysis of ALL metal and non-metal fragments removed from active duty personnel. In 2008, the division

received over 490 fragments from 195 cases and conducted over 550 chemical and microscopy analyses on the characterization of these fragments. The division maintains a database repository containing chemical and demographic information on all fragments and cases submitted to the EMF Registry.

- This year the division provided analytical support and toxicological consultation on different topics related to depleted uranium and embedded fragments, including analytical measurements (over 1000 measurements), sample collection and archival (over 4,500 specimens), clinical toxicology consultations on toxic metals, forensic toxicology consultations on toxic metals, and histopathologic evaluations of foreign materials in tissues. In 2008, the division's laboratory on DU analysis provided analytical support to the Baltimore VA Center DU Clinical and Biosurveillance Programs, to USCHPPM, to WRAMC-Health Physics and Preventive Medicine Programs, and to the DoD Force Health Protection and Readiness Programs (Health Affairs).
 - The division is working closely with the WRAMC in support of the Combat Wound Initiative Program. The CWI Program is a collaborative, multi-disciplinary, inter-service Program effort with leaders in wound care and wound research in order to provide state-of-the-art, complex wound care through targeted clinical and translational research incorporating advanced technology and treatment, tissue banking, bioinformatics, and bio-toxicology of retained fragments.
 - This mission critical addition to the CWI Program of the AFIP Division of Biophysical Toxicology will enable analysis of the local and systemic effects of both retained and removed fragments and foreign bodies on a high throughput basis in patients wounded in combat operations in Afghanistan, Iraq and Israel as well as those sustaining civilian traumatic events and adverse environmental mishaps. In order to achieve this aim, determination of fragment composition, local and remote tissue effects, and local and systemic concentrations of potentially toxic heavy metals and other organic potential toxins is essential. In addition to further elucidating the local and systemic effects of retained heavy metals and other potentially toxic substances in humans, these newly collaborative efforts between CWI and AFIP DBT will allow the development of treatment-directing decision support tools or predictive models, which are intended to function as a standard clinical tool for guiding individualized treatment of patients with retained fragments and foreign bodies.
2. In close collaboration with the DoD Force Health Protection and Readiness Programs (Health Affairs), division staff (Dr. Jose A. Centeno) have been actively involved as members of the DHSD Biomonitoring Working Group. Through participation on these committees, the division staff has contributed to the development of guidelines for a policy on Biomonitoring of Nerve Agent Exposures and the Analysis of Metal Fragments Removed from Department of Defense Personnel (HA Policy 01-029). The division has established registry procedures on Chemical Warfare Agents (Registry Code RG06), in addition to the DU and Embedded Metal Fragment Registries.
 3. The division provided consultation and analytical toxicological support to the Office of the Armed Forces Medical Examiner, U.S. Center for Health Promotion and Preventive Medicine, DoD Force Health Protection and Readiness Programs (Health Affairs), Walter Reed Army Medical Center, Navy Bureau of Medicine and Surgery, Brooke Army Medical Center, Navy Criminal Investigative Services, Navy Health Research Center, Depleted Uranium Program at the Baltimore VAMC, and Army and Navy Criminal Investigation Divisions, in several cases concerning potential exposure to environmental agents and toxic metals including mercury, arsenic, lead, thallium, aluminum, and depleted uranium.
 4. The division maintains a Center for Analysis and Quality Assurance for the study of remedies and complementary medicine preparations of military relevant (MIL-CAM). This Center is aimed at establishing laboratory procedures and analytical toxicological assays to elucidate the chemical properties and health effects of remedies and supplements which may be used by Service Members.
 5. The division has developed and maintains the ONLY DoD Registry on Military Medical Geology, with collaboration from DoD, national and international organizations including the Navy Bureau for Medicine and Surgery, Navy Health Research Center – Environ-

mental Health Effects Laboratory in Wright Patterson Air Force Base, Ohio, the Army Corps of Engineers – Environmental Lab, the U.S. Geological Survey, UNESCO and the International Union of Geological Sciences. This Registry is aimed at the study and characterization of natural environmental factors (e.g., minerals, trace metals, organic compounds, etc) and their distribution and impact on the development of health problems. Health problems associated with exposure to lead, mercury, fluoride, cadmium, arsenic, thallium and other toxic metals are been studied. The division is collaborating with the Navy Bureau of Surgery and Medicine and the Navy Environmental Health Effects Laboratory to access the health risks associated with exposure to airborne dust and other particulate matter, particularly dust from OIF, Afghanistan, and other regions. The division has also developed a teaching and training unit on Medical Geology which is based on a three-day course titled “Metals, Health and the Environment”.

- 6. The Division of Biophysical Toxicology maintains the Breast Explant Registry and conducts a research program on the archiving, consultation, and biophysical studies of silicone breast explants and bioimplantable materials database. This Registry has an extensive collection of published literature, CDs, and a list of patents on materials used in the manufacture of silicone breast implants and other biomedical devices.
- 7. The division has developed and maintains the International Tissue and Tumor Repository for Chronic Arseniasis, with the partial support of two other U.S. Federal agencies (U.S. Environmental Protection Agency and National Cancer Institute). This Repository continued to serve as a centralized facility for collecting, archiving, and studying tissue specimens from populations chronically exposed to arsenic. In 2008, the Repository provided key forensic analytical support in diagnostic cases of suspected acute arsenic poisoning.
- 8. In collaboration with other federal agencies including the U.S. Geological Survey and the U.S. Environmental Agency, Division’ staff (JA Centeno) continue to collaborate with scientists from the Ukraine in studying potential health effects associated with environmental exposure to mercury in the city of Gorlovka, Ukraine.

CONSULTATION:

The Division of Biophysical Toxicology is charged with the task of providing analytical toxicology support for the study of toxic metals and the identification and quantification of environmental, chemical and foreign materials in tissues and other biological specimens. In 2008, the division was involved on over 554 cases requiring total uranium and/or depleted uranium analysis, and archival. In addition, division staff worked closely with the Office of the Armed Forces Medical Examiner and the Navy and Army Criminal Investigative Criminal Divisions in several suspected cases of toxic metal poisoning.

<i>Cases</i>	<i>Completed</i>
Military	99
Army (72)	
Navy (17)	
Air Force (10)	
Federal	378
VAH (378)	
Civilian	23
Interdepartmental	17
In-House	6
Total	523

Deployments (Official Trips):

- 1. February 12, 2008: Geological Survey of Cyprus and Cyprus Association of Geologists and Mining Engineers, Nicosia, Cyprus. (Centeno JA, Invited International Speaker).
- 2. May 25-29, 2008: 4th International Conference on Trace Element Speciation in Biomedical, Nutritional and Environmental Sciences, GSF, National Research Center for Environmental Health, Munich, Germany. (Centeno JA, Invited Plenary Speaker).

3. July 9, 2008: Smoke and Sand Inhalation Meeting, Naval Health Research Center, Detachment Environmental Health Effects Laboratory, Wright-Patterson Air Force Base, OH. Analysis of Dust (GB van der Voet, oral presentation).
4. June 12-13, 2008: U.S. Army Engineer Research and Development Center, Hanover, NH. (Centeno JA, Invited Speaker).
5. July 17-19, 2008: Annual Meeting of the Bolivian Division of the International Academy of Pathology, La Paz, Bolivia. (Centeno JA, Invited Speaker).
6. August 11, 2008: 33rd International Geological Congress, Oslo, Norway. (Centeno JA, Invited Plenary Speaker; webcast presentation).
7. August 11, 2008: 11th Annual Force Health Protection Conference, Albuquerque, New Mexico, USA, 9-15 August 2008. Raman microspectroscopy characterization: The role of metal binding speciation. (E Fornero, oral presentation)
8. October 12-17, 2008: XXVII International Congress of the International Academy of Pathology, Athens, Greece. (Centeno JA, Invited Speaker).
9. November 21-22, 2008: Planet Earth and Society: Earth Sciences and Human Activity, University of Puerto Rico – Rio Piedras, PR. (Centeno JA, Invited Speaker).
10. November 25, 2008: Global Connections between Earth Sciences, Health and Policy. The National Academies – Board on International Scientific Organizations, Washington, DC (Centeno JA, Invited Speaker).

Quality Assurance:

1. The division successfully participated on 3 proficiency testing programs from the College of American Pathologists and 4 proficiency testing programs sponsored by the American Hygiene Association on environmental lead, and other proficiency testing programs on blood-lead and trace metals sponsored by the Wadsworth Center-New York Department of Health.
2. The division conducted toxic metals quality assurance analyses of water in support of the quality assurance program for the AFIP DLAM facilities and the AFIP Safety Office.

EDUCATION

Presentations and Seminars:

Members of the division presented 15 invited lectures, seminars and conference abstracts representing over 770 man-hours. Dates and titles are listed below.

Courses:

In collaboration with national and international organizations, division staff (Dr. Jose A. Centeno) co-organized 4 short courses, 2 Symposia, and gave a total of 16 lectures. These activities had a total of ~ 240 attendees for ~ 740 man-hours. The following short courses co-organized by the Division of Biophysical Toxicology were offered in 2008:

1. In 2008, the short course entitled “Medical Geology: Metals, Health and the Environment” was held in 4 different countries. Full financial support for these courses was obtained from national, international and local organizations where the courses were presented. Dates and locations are listed below:
 - a. February 12-13, 2008: Short Course “Medical Geology – Metals Health and the Environment,” Geological Survey of Cyprus and Cyprus Association of Geologists and Mining Engineers, Nicosia, Cyprus. (Dr. Jose A. Centeno, Course Co-Director and Lecturer).
 - b. July 7, 2008: Short Course “Medical Geology – Relevancy to Environmental Health Problems in Ghana.” University of Mines and Technology, Tarkwa, Ghana. (Dr. Jose A. Centeno, Course Co-Director and Lecturer).
 - c. July 17-19, 2008: Short Course on “Environmental, Toxicologic Pathology and Medical Geology,” Annual Meeting of the Bolivian Division of the International Academy of Pathology, La Paz, Bolivia. (Dr. Jose A. Centeno, Speaker).
 - d. August 10, 2008: Short Course on “Medical Geology – Metals, Metalloids, Health and the Environment,” Oslo, Norway. (Dr. Jose A. Centeno, Co-Director and Lecturer).
2. In 2008, division staff (Dr. Jose A. Centeno) participated on the organization of two national/international Symposia and Special Workshops.
 - a. October 15, 2008: Symposium on “Toxicological and Pathological Aspects of Exposure to Particulate Matter,” XXVII International Congress of the Academy of Pathology, Athens, Greece.
 - b. November 25, 2008: Symposium on “Global Connections between Earth Sciences,

Health and Policy,” National Academy of Sciences, Board on International Scientific Organizations, Washington DC.

Trainees and Mentorship Activities: In 2008, division staff provided training and served as research mentor to the following personnel:

1. One Clinical Toxicologist, Leiden University Medical Center, The Netherlands. (JA Centeno)
2. One postdoctoral fellow under the program “Chemical Analysis and Microspectroscopy Studies of Tungsten Metal Alloys and fine Particulate Desert Sand” (in collaboration with the Naval Health Research Center, Environmental Health Effects Laboratory, Wright Patterson Air Force Base, Dayton, Ohio). (JA Centeno)
3. Served as External Principal Reviewer, PhD Candidate (Mr. Al Vahidnia, Leiden University, Leiden, The Netherlands). Thesis on: “Studies into the Mechanism of Arsenic-Induced Neurotoxicity.” (JA Centeno)
4. Served as External Examiner, PhD candidate (Mrs. Pearce, Dora Claire, School of Science and Engineering, University of Ballarat, Ballarat, Australia). Thesis title: “Geology, geography and cancer: Is there a connection in the goldfields region of Victoria, Australia?” (JA Centeno)
5. Served as Advisor and Examiner, PhD Candidate (Mr. Al Vahidnia, Leiden University, Leiden, The Netherlands). Thesis on: “Studies into the Mechanism of Arsenic-Induced Neurotoxicity.” (GB van der Voet)
6. Mentor for 2 students in the AFIP Summer Intern Program 2008 (JA Centeno)

Faculty and Professional Appointments:

1. Professorial Lecturer in Environmental and Occupational Health, The George Washington University-School of Public Health and Health Services (Dr. Jose A. Centeno; July 1, 2006 – June 30, 2007; July 1, 2007, June 30, 2008).
2. Distinguished Visiting Professor, University of Turabo, School of Sciences and Technology, Caguas, Puerto Rico (Dr. Jose A. Centeno, 2004-present).
3. Adjunct Professor of Environmental Sciences, Jackson State University, College of Engineering, Science and Technology (CSET), Environmental Science PhD Program, Jackson, Mississippi (Dr. Jose A. Centeno, 2005-present).
4. Adjunct Professor of Chemistry, Chemistry Faculty, Universidad de la Republica de Uruguay, Montevideo, Uruguay (Dr. Jose A. Centeno; 2007-Present).
5. Visiting Professor, Hope University School of Medicine, Belize (Dr. Jose A. Centeno; 2005 - Present)
6. Guest Professorship, China University of Mining and Technology, Beijing, China (Dr. Jose A. Centeno).
7. Fellow, Royal Society of Chemistry, London, UK (Dr. Jose A. Centeno; June 2007 – Present).
8. Senior Advisor, UNESCO-International Year of Planet Earth (Dr. Jose A. Centeno; 2007-2009).
9. Officer, International Union of Geological Sciences – Commission on Geosciences for Environmental Management (IUGS-GEM) (Dr. Jose A. Centeno; 2006 – Present).
10. Associate Professor, Leiden University Medical Center, Leiden, The Netherlands (Dr GB van der Voet, 1994-present)

Presentations:

Invited lectures and presentation of research abstracts at national and international conferences:

1. February 24, 2008: AFIP-WRAMC Tele Video Conference. The Emerging Field of Military Medical Geology. (Centeno JA, Speaker).
2. February 28, 2008: 1st Latin-American Conference in Health Disparities – Obesity, Asthma, and Sexuality, San Juan, Puerto Rico. “Health Effects from Exposure to Natural and Mineral Dust” (Centeno JA, Invited Speaker).
3. February 12, 2008: Geological Survey of Cyprus and Cyprus Association of Geologists and Mining Engineers, Nicosia, Cyprus. “Medical Geology Workshop and Short Course” (Centeno JA, Invited International Speaker).
4. March 4-6, 2008: GeoHealth I. Building Bridges across the Geological and Health Sciences, USGS and Geological Society of America, Reston, VA. “Integrating Geosciences and Public Health – The Role of the Medical Geologists,” (Centeno JA, Invited Speaker).

5. April 13-16, 2008: 7th Annual Symposium on the Environment and Hormones, Tulane/Cavier, New Orleans. "Metals, Metalloids and Health" (Centeno JA, Invited Speaker).
6. May 25-29, 2008: 4th International Conference on Trace Element Speciation in Biomedical, Nutritional and Environmental Sciences, GSF, National Research Center for Environmental Health, Munich, Germany. "The Emerging Field of Medical Geology – The Role of Trace Element Speciation in Human Health" (Centeno JA, Invited Plenary Speaker).
7. June 12-13, 2008: U.S. Army Engineer Research and Development Center, Hanover, NH. "The Emerging Field of Military Medical Geology" (Centeno JA, Invited Speaker).
8. July 7, 2008: Medical Geology – Relevancy to Environmental Health Problems in Ghana. University of Mines and Technology, Tarkwa, Ghana (Centeno JA, Invited Speaker).
9. July 17-19, 2008. Annual Meeting of the Bolivian Division of the International Academy of Pathology, La Paz, Bolivia. "Environmental and Toxicologic Pathology" (Centeno JA, Invited Speaker).
10. July 9, 2008: Smoke and Sand Inhalation Meeting, Naval Health Research Center, Detachment Environmental Health Effects Laboratory, Wright-Patterson Air Force Base, OH. Analysis of Dust (GB van der Voet, oral presentation)
11. August 11, 2008: 11th Annual Force Health Protection Conference, Albuquerque, New Mexico, USA, 9-15 August 2008. Raman microspectroscopy characterization: The role of metal binding speciation. (E Fornero, oral presentation)
12. August 11, 2008: 33rd International Geological Congress, Oslo, Norway. Arsenic and Medical Geology – The Role of the Earth Scientist in the Assessment and Prevention of Health Risk. Presented at the Theme of the Day (Centeno JA, Invited Plenary Speaker; webcast presentation).
13. October 12-17, 2008: XXVII International Congress of the International Academy of Pathology, Athens, Greece. "Dust and Human Health – Environmental Toxicology Aspects from Exposure to Nanoparticles" (Centeno JA, Invited Speaker).
14. November 21-22, 2008: Planet Earth and Society: Earth Sciences and Human Activity, University of Puerto Rico – Rio Piedras, PR. "Earth and Health (Medical Geology) – Building a Safer Environment" (Centeno JA, Invited Speaker).
15. November 25, 2008: Global Connections between Earth Sciences, Health and Policy – A Symposium in Celebration of International Year of Planet Earth. The National Academies – Board on International Scientific Organizations, Washington, DC (Centeno JA, Invited Speaker).

RESEARCH

Publications:

Division staff published 8 journal articles, three book chapters, fourteen abstracts, The citation for each publication is given below. Four other manuscripts were submitted and accepted for publication, and several research abstracts were published in conferences' book of abstracts and/or book of proceedings.

Journal Articles:

1. Centeno JA. Editorial – Introducing a special theme issue on medical geology. *J Environ Monit.* 2008; 10(12): 1391-1393. Epub 2008 Nov 5.
2. Centeno JA. Foreword: 10th anniversary review: natural disasters and their long-term impacts on the health of communities. *J Environ Monit.* 2008; 10(2); discussion 167-175. Epub 2008 Jan 21.
3. Centeno, JA. Medical geology, impacts of the natural environment on human health. *Itiercentia.* 2008; 33(3):170
4. Finkelman RB, Centeno JA, Selinus O. Medical Geology – Threat or Opportunity. *AIPG* 2008:46-49.
5. Gibb HJ, Kozlov K, Centeno JA, Poulin J, Jurgenson V, Kolker A, Conko KM, Landa ER, Panov BS, Xu H. Occupational Mercury Exposure at a Mercury Recycling Facility in Ukraine. *J Occup Environ Hygiene.* 2008; 5(8): 483-489.
6. Sarafanov AG, Todorov TI, Kajdacsy-Balla A, Gray MA, Macias V, Centeno JA. Analysis of iron, zinc, selenium and cadmium in paraffin-embedded prostate tissue specimens using inductively coupled plasma mass-spectrometry. *J Trace Elements in Medicine and Biology.* 2008; 22(4): 305-314. Epub 2008 Jul 16.
7. Todorov TI, Xu H, Ejnik JW, Mullick FG, Squibb K, McDiarmid MA, Centeno JA. Depleted uranium analysis in blood by inductively coupled plasma mass spectrometry. *J Anal At Spectrom.* Epub Dec 5.

8. Van der Voet, GB, Sarafanov A, Todorov TI, Centeno JA, Jonas WB, Ives JA, Mullick FG. Clinical and analytical toxicology of dietary supplements: a case study and a review of the literature. *Biological Trace Element Research*. 2008;125(1):1-12. Epub 2008 Aug 16.

Book Chapters and Special Reports:

1. Selinus O, Finkelman R, Centeno JA, Cave M. Medical Geology – the European Perspective. Central European Geology (*Acta Geologica Hungarica*) 2008; 51(2): 1-19
2. Tchounwou PB, Centeno JA. Toxicologic Pathology. In: *Handbook of Preclinical Development – Toxicology* (Cox Gad S, editor) John Wiley & Sons Inc (2008), pp551-580 (Chapter 16th) (ISBN 978-0-470-24846-1)
3. Van der Voet GB, Centeno JA. Metals. In: *Side Effects of Drugs*, Annual 30 (Aronson JK, editor), Elsevier Science BV, Amsterdam (2008), pp262-272 (Chapter 22)(ISBN 0-444-52767-2)(invitation)

Research Abstracts Published in Books of Abstracts and/or Conference Proceedings:

1. Centeno JA. Respiratory Toxicology: Health Effects of Bioactive Metals in Natural Dusts. 1st Latin American Forum on Health Disparities in Latino Communities – Obesity, Asthma, and Sexually Transmitted Infections. San Juan, Puerto Rico, February 28-29, 2008.
2. Centeno JA. Metals, Metalloids and Health. 7th Annual Symposium on the Environment and Hormones – Environmental Signaling in Urban Ecosystems. Center for Environmental Research, Tulane/Xavier, April 13-16, 2008.
3. Centeno JA. The Emerging Field of Medical Geology and the Role of Trace Element Speciation in Human Health. 4th International Symposium on Trace Element Speciation in Biomedical, Nutritional and Environmental Sciences, May 25-29, 2008, Munich, Germany.
4. Centeno JA. Arsenic and Medical Geology – The Role of the Earth Scientist in the Assessment and Prevention of Health Risk. 33rd International Geological Congress, Theme of the Day – Water and Health. Oslo, Norway, August 10-14, 2008.
5. Centeno JA. Health Effects from Geogenic (Natural) Dust. 5th International Symposium on Recent Advances in Environmental Health Research. Jackson State University, Jackson, Mississippi, September 15-17, 2008.
6. Centeno JA. Dust and Human Health – Environmental Toxicology Aspects from Exposure to Nanoparticles. XXV11 International Congress of the International Academy of Pathology, Athens, Greece, October 12-17, 2008.
7. Centeno JA, Squibb K, Todorov TI. Blood uranium isotopic analysis as a measure of depleted uranium exposure in U.S. Soldiers. 11th Annual Conference – Force Health Protection, Albuquerque, New Mexico, April 9-15, 2008.
8. Chesnick IE, Centeno JA, Todorov TI, Koenig AE, Potter K. Manganese-Enhanced Magnetic Resonance Microscopy of Mineralization Rates. 16th Scientific Meeting of the International Society for Magnetic Resonance in Medicine, Toronto, Canada, 3-9 May 2008.
9. Fornero E, Gunasekar P, Centeno JA, Chapman G, Van der Voet GB, Wagner D. Raman microspectroscopy characterization: The role of metal binding speciation. Abstracts 11th Annual Force Health Protection Conference, Albuquerque, New Mexico, USA, 9-15 August 2008 (track Science and Technology), **paper no ..**
10. Ives JA, Centeno JA, Jonas WB, Van der Voet GB, Todorov TI. Clinical and analytical toxicology of dietary supplements: A case study. Abstracts 11th Annual Force Health Protection Conference, Albuquerque, New Mexico, USA, 9-15 August 2008 (track Occupational and Preventive Medicine Physicians), **paper no ..**
11. Todorov T, Centeno JA, Koenig A, Sarafanov A. Distribution of Cd, Zn, Se, and Fe in Prostate Tissues. 11th Annual Conference – Force Health Protection, Albuquerque, New Mexico, April 9-15, 2008
12. Van der Voet GB, Olabisi AO, Wagner DJ, Chapman GD, Mullick FG, Centeno JA. Raman Microspectroscopy characterization of tungsten-based alloys: the role of metal-binding speciation. Abstracts 4th International Conference on Trace Element Speciation in Biomedical, Nutritional and Environmental Sciences, Munich-Neuherberg, Germany, May 25-29, 2008, poster no P15
13. Van der Voet GB, Sarafanov A, Todorov TI, Centeno JA, Jonas WB, Ives JA, Mullick FG. Toxicology of dietary supplements: a case study. Abstracts 5th International Symposium on Recent Advances in Environmental Health Research, Jackson, MS, September 14-17, 2008, **poster no ..**
14. Zhang L, Xu H, Todorov TI, Centeno JA. Development of a robust method for the determination of uranium and detection of uranium isotopic ratios in human samples. 4th

International Symposium on Trace Element Speciation in Biomedical, Nutritional and Environmental Sciences, May 25-29, 2008, Munich, Germany.

Research Projects:

In 2008, division staff was engaged on the following AFIP approved research projects.

Principal Investigator:

PI: JA Centeno

1. Depleted Uranium Follow-up Program: Biological Surveillance, Chemical Analysis and Repository of Specimen.
2. Dietary and Occupational Risk Factors for Prostate Disease.
3. Reliability of the Determination of Cd, Zn and Se Levels in Paraffin-Embedded Prostate Tissue.
4. Histopathology and Laser Raman Microprobe Analysis of Regional Lymph Nodes from Patients with Silicone Breast Implants.
5. Development of the International Tissue and Tumor Repository for Chronic Arseniasis.

Collaborative Research Projects Developed/Continued During 2008:

1. Uranium-Spiked Control Semen Study Statement of Work. (in collaboration with Dr. Melissa McDiarmid and Dr. Katherine Squibb, VA-Baltimore Center and University of Maryland,. Departments of Toxicology and Occupational Medicine).
2. The Chemical and Biological Analysis of Airborne Dust from OIF and Kuwaiti Theaters. (in collaboration with CDR Mark Lyles, Navy Bureau of Medicine and Surgery, BUMED).
3. Microbial Ecology and Geochemistry of Iraqi Airborne Dust (in collaboration with Dr. Terry Sobecki, US Army Corps of Engineers, US Army Engineer Research and Development Center; CDR Mark Lyles, BUMED)
4. Chemical Analysis and Microspectroscopy Studies of Tungsten Metal Alloys and fine Particulate Desert Sand (in collaboration with the Naval Health Research Center, Environmental Health Effects Laboratory, Wright Patterson Air Force Base, Dayton, Ohio; CDR Gail Chapman, PI).
5. Fernald Workers' Medical Monitoring Program – Renal Biomarkers of Workplace Uranium Exposure (in collaboration with Dr. Susan Pinney, University of Cincinnati, Medical Center)
6. Bone Formation Studies by Magnetic Resonance Microscopy (in collaboration with Dr. Kimberlee Potter, AFIP).
7. Feasibility of Assessing Health Risks from Long-Term Mercury Exposure in Gorlovka, Ukraine (in collaboration with Dr. Allan Kolker, USGS).
8. Combat Wound Initiative Program. (In collaboration with LTC Alexander Stojadinovic and MAJ Benjamin K Potter, WRAMC).

In Operation Iraqi Freedom (OIF) related studies, division staff collaborated with the VA Baltimore Center, the Department of Toxicology-University of Maryland, Baltimore, MD, the Inorganic Laboratory Section at the Center for Disease Control and Prevention, USCHPPM, DoD Force Health Protection and Readiness Programs (Health Affairs), and the Navy Bureau of Medicine and Surgery (BUMED). The division is participating on a research program to study low levels of depleted uranium in tissues and body fluids from potentially exposed service personnel. In addition, the division is engaged on studies concerning the chemical analysis of embedded metal and non-metallic fragments removed from DoD injured personnel. In collaboration with the US Navy Environmental Health Effects, the division is working on the chemical and microspectroscopic characterization of airborne dust with PM₁₀₋₄₀ and PM_{2.5}. and the chemical characterization of embedded metal fragments removed from Department of Defense Active Duty Personnel.

Collaborators:

Military:

1. LTC Alexander Stojadinovic, Combat Wound Initiative Program, WRAMC.
2. LT Dean Wagner, US Navy Health Research Center - Environmental Health Effect Lab (NHRC-EHEL), Wright Patterson Air Force Base, Ohio.
3. LCDR Michael G. Stockelman, US NHRC-EHEL
4. CDR Gail Chapman, US NHRC-EHEL
5. Capt Mark Lyles, BUMED

6. Dr. Terry Sobecki, Army Corps of Engineers
7. Dr. John Kalinich, Uniformed Services University of the Health Sciences, Armed Forces Radiobiology Research Institute

Federal:

1. MA McDiarmid and K Squibb, University of Maryland, Baltimore and VA Baltimore Center – Follow-up and Monitoring of Gulf War Veterans with Fragments of Depleted Uranium and Other Sources of Depleted Uranium Exposure.
2. A Kolker, US Geological Survey, H Gibb, Science International – Feasibility of Assessing Health Risks from Long-term Mercury Exposure in Gorlovka, Ukraine.
3. WF Regnault, Food and Drug Administration (FDA), Rockville, MD – Mechanistic Determination of Stress-Induced Dystrophic Calcification in Cardiovascular Materials and Devices.
4. WF Regnault, Food and Drug Administration (FDA), Rockville, MD – Assessment of Calcium Phosphate Deposition Mechanisms in Dental and Orthopedic Applications.

International Collaborators:

1. Prof. Philip Weinstein, Dr. Angus Cook, University of Western Australia, School of Public Health Research Assessing and Preventing the Disease Burden From Geogenic Dusts.
2. Dr. Olle Selinus, Geological Survey of Sweden — Research collaboration on Medical Geology.
3. Prof. Dr. Sergio Caroli, Institute Nazionale di Sanita, Rome, Italy — Research collaboration on speciation of trace elements and depleted uranium analysis.
4. Prof. Dr. Chin-Hsiao Tseng, National Taiwan University Hospital, Taipei, Taiwan — Research collaboration on environmental-clinical toxicology, epidemiology and arsenic health effects.

Funds Received through Interagency and Defense Sharing Agreements: In 2008, non-AFIP research funds were received as part of interagency and defense sharing agreements developed through collaborative projects including:

1. Statement of Work between the AFIP and the US Center for Health Promotion and Preventive Medicine to support the analysis of depleted uranium cases and archival of samples at the AFIP DU Registry.
2. VA/Department of Defense Sharing Agreement to support Depleted Uranium Follow-up, Surveillance and Archival Program.
3. DoD Center for Prostate Research, Fort Detrick, Maryland. Funds to support Postdoctoral Training Fellowship in Prostate Cancer Research.
4. Interservice Support Agreement (ISSA) with the Naval Health Research Center Detachment Environmental Health Effects Laboratory, Wright Patterson Air Force Base, Dayton, Ohio.

PROFESSIONAL ACTIVITIES

Editorial Work (JA Centeno):

Manuscripts Reviewed for:

1. *Journal of Environmental Monitoring* (2x)
2. *Biological Trace Element Research* (1x)
3. *Journal of Trace Elements in Medicine and Biology* (1x)
4. *Environmental Toxicology* (1x)
5. *Science of the Total Environment* (STOTEN) (1x)
6. *Environmental Geochemistry and Health* (1x)
7. *Analytical and Bioanalytical Chemistry* (1x)
8. *Environmental International* (1x)

Served as Guest Editor for:

1. *Environmental Geochemistry and Health* – Special Issue on Medical Geology in
2. *Developing Countries* (Selinus O, Finkelman RB, Centeno JA, Guest editors)

Editorial Board Appointments:

1. *Journal of Environmental Monitoring* – JA Centeno
2. *Biological Trace Element Research* – JA Centeno
3. *International Journal of Environmental Research and Public Health* – JA Centeno
4. *Environmental Health Focus* – JA Centeno

5. *Environmental Toxicology* – JA Centeno

Editorial Work (GB van der Voet):

Manuscripts Reviewed for:

1. *Toxicology in Vitro* (6x)
2. *Environmental Toxicology* (1x)
3. *Journal of Trace Elements in Medicine and Biology* (1x)
4. *Ecotoxicology and Environmental Safety* (1x)
5. *Science of the Total Environment* (1x)

Editorial Board Appointments:

Human and Experimental Toxicology – GB van der Voet

Committees (2008):

Intramural:

AFIP-Research Committee (1995-Present), JA Centeno

Extramural:

1. Member, DoD Force Health Protection and Readiness Programs (Health Affairs), Biomonitoring Working Group (2005 – Present) – JA Centeno
2. Member, National Academy of Science – National Research Council, Committee on Research Priorities on Earth Sciences and Public Health (April 2007) – JA Centeno.
3. Member, Planning Committee, National Academies-Board on International Scientific Organizations. Symposium on Global Connections Between Earth Sciences, Health and Policy (September 2008, JA Centeno).
4. Chairman and Co-Founder, International Medical Geology Association (2000-Present) – JA Centeno
5. Officer, Commission on Geoscience for Environmental Management (GEM), International Union of Geological Sciences (2005-present; JA Centeno).
6. Senior Advisor, UNESCO-International Year of Planet Earth (2007-2009) – JA Centeno.
7. Chair, External Advisory Committee, National Science Foundation –STARGE Program at Jackson State University, Jackson, Mississippi (1999 – Present) – JA Centeno
8. Chair, External Advisory Board-National Institutes of Health MBRS-RISE Program for Universidad del Este, Carolina, Puerto Rico (2004 – present) – JA Centeno
9. Member, External Advisory Committee-National Institutes of Health Research Centers for Minority Institutions, Jackson State University, Jackson, Mississippi (1997-Present) – JA Centeno
10. Member, U.S. Presidential Advisory Board on Health, Sciences, Math and Engineering, Ana G. Mendez University System of Puerto Rico, San Juan, Puerto Rico (1995-Present) – JA Centeno
11. Member, External Advisory Board, National Science Foundation-Minority Institutions of Excellence Program, Metropolitan University, San Juan, PR (1999-Present) – JA Centeno
12. Member, International Scientific Committee, International Conference on Trace Element Speciation in Biomedical, Nutritional and Environmental Sciences, GSF, Germany (2001-Present) – JA Centeno
13. Member, Federation of European Societies on Trace Elements and Minerals, GMS Society (2004-present) – JA Centeno
14. Member, Byelaw committee, International Medical Geology Association (2008-present) – GB van der Voet

DIVISION OF CHEMICAL ANALYSIS

STAFF

H. Marie Jenkins

IMPACT

- The laboratory conducts analyses on more calculi than any other laboratory in the military, and the number of cases increased by approximately 10% this year.
- The laboratory provides scanning electron microscopy with energy-dispersive x-ray analysis for the AFIP and DoD.
- Expanded laboratory space to accommodate an additional Scanning Electron Microscope.
- Acquired an additional Scanning Electron Microscope with Energy Dispersive X-ray Analysis to increase analytical capabilities and reduce turn-around-time.

CONSULTATION

Military installations submitted 692 calculi for identification and 137 were received from VA medical centers.

<i>Cases</i>	<i>Completed</i>
Military	692
Army (566)	
Air Force (126)	
Federal (VA)	137
Civilian.....	0
Interdepartmental	3
Total	832

EDUCATION

Trainees:

Trained members of the AFIP staff in Scanning Electron Microscope (SEM) and Fourier Transform Infrared (FTIR) techniques.

Provided training in FTIR to one summer intern.

Continuing Education:

June 2008: Danbury, CT, Smith Detection Training Course: Fundamentals of FTIR Spectrometry, HM Jenkins.

RESEARCH

Abstract:

Vander Voet GB, Olabisi AO, Wagner DJ, Kalinick JF, Jenkins HM, Chapman GD, Mullick FG, Centeno JA. Raman Microspectroscopy Characterization of Tungsten-Based Alloys: The Role of Metal Binding Speciation. Abstracts of the 4th International Trace Element Speciation in Biomedical, Nutritional and Environmental Sciences, Munich-Neuherberg, Germany, May 25 – 29, 2008

Project:

Evaluation of the composition of urinary calculi in military personnel.

DIVISION OF INFECTIOUS AND TROPICAL DISEASES PATHOLOGY



Mary Klassen-Fischer
Chief

Date of Appointment – 1 October 2007

STAFF

Medical:

Mary K. Klassen-Fischer, MD, Chief, Division of Infectious & Tropical Diseases Pathology
 Ronald C. Neafie, MS, Chief Parasitology Branch
 Wayne M. Meyers, MD, PhD, Red Cross Volunteer
 Douglas J. Wear, DS, ARP, Associate Chairman
 Ann M. Nelson, MD

Administrative:

Darlene Wilson, Office Manager, ARP

IMPACT

Operation Iraqi Freedom produced significant numbers of cutaneous leishmaniasis that began arriving in the division. A Leishmania Registry was established to capture patient data and allow for long term follow-up. As of December 31, 2008, 1,471 patients were enrolled, 1,234 Army, 45 Air Force, 58 Navy, 24 unknown, and 110 civilians. Of these, 877 patients were positive, 800 Army, 7 Air Force, 20 Navy, 3 unknown, and 47 civilians. Four patients with visceral leishmaniasis are included. Our division is the military's gold standard for the diagnosis of leishmaniasis.

CONSULTATION

Infectious diseases are a major cause of morbidity in the military and a significant possible cause of mortality, as judged by DHS. Our division is the only group of pathologists in the world dedicated to the pathology of infectious diseases. Glass slides and paraffin blocks of tissues suspected to contain lesions caused by infectious disease agents are stained with a number of special stains to capture gram-positive or gram-negative bacteria, fungi, mycobacteria, or immunostains for viruses. Our many years of experience observing infectious agents' destructive footprints in tissue, and the tissue's reaction, help us judge whether a lesion is due to an infectious agent and which the most likely etiologic agent is.

<i>Cases</i>	<i>Completed</i>
Military	166
Army (112)	
Navy (33)	
Air Force (21)	
Federal	72
VA (58)	
Other (14)	
Civilian	179
Interdepartmental	1,092
Total	1,509

EDUCATION

Courses:

Division staff participated as faculty to 1 AFIP course, the Military Tropical Medicine Course at USUHS, and 1 USCAP course.

Trainees:

The division hosted 1 Red Cross volunteer in 2008.

Presentations:

1. March 2008: Denver CO, 97th Annual Meeting of the United States and Canadian Academy of Pathology, Course: "Diagnostic Surgical Pathology of Infectious Disease," MK Klassen-Fischer.
2. March 2008: Bethesda MD, AFIP 18th Annual Anatomic Pathology Course, "Review of Infectious Disease Pathology," MK Klassen-Fischer.
3. March and April 2008: Geneva, Switzerland, "Buruli ulcer is an imported and exported disease," Annual Meeting of Global Buruli Ulcer Initiative, World Health Organization, WM Meyers.
4. March and April 2008: Geneva, Switzerland, "Buruli ulcer and its bone lesions: about 106 cases," Annual Meeting of Global Buruli Ulcer Initiative, World Health Organization, WM Meyers.
5. March and April 2008: Geneva, Switzerland, "Historical work on Buruli ulcer in Africa and the Americas, before 1998," Annual Meeting of Global Buruli Ulcer Initiative, World Health Organization, WM Meyers.
6. June 2008: Washington DC, National Museum of Health and Medicine, AFIP, "Notes on the history of leprosy in America with a brief description of the disease." Lunchtime Lecture at the Museum, featuring new exhibit on leprosy, WM Meyers.
7. July 2008: Washington DC, AFIP, Lecture for the Summer Interns, "Neglected infectious diseases of tropical Africa." WM Meyers.
8. July 2008: Silver Spring MD, USUHS, Military Tropical Medicine Course, "Loiasis and Dracunculiasis," RC Neafie.
9. August 2008 Washington DC, AFIP Grand Rounds Videoteleconference, "Infectious Disease Pathology," MK Klassen-Fischer.
10. August 2008: Washington DC, AFIP, Illustrated talk after receiving the John Shaw Billings Lifetime Achievement Award, "Colleagues and collaborators," WM Meyers.
11. August 2008: Washington DC, WRAMC, Pathology Department, "Nematode Infections," RC Neafie.
12. August 2008: Washington DC, WRAMC, Pathology Department, "Cestodes and Trematodes," RC Neafie.
13. October 2008: Washington DC, AFIP Regularly Scheduled Conference, "Some Tough Calls," RC Neafie.
14. October 2008: Athens, Greece, International Academy of Pathology, "Clinicopathologic classification of *Mycobacterium ulcerans* disease (Buruli ulcer)," WM Meyers.
15. October 2008: Washington DC, AFIP Regularly Scheduled Conference, "Noninfections," MK Klassen-Fischer.
16. October 2008: Washington DC, WRAMC, Microbiology Department, "Identification of Microfilariae," RC Neafie.
17. November 2008: Washington DC, WRAMC, Microbiology Department, "Identification of Protozoans," RC Neafie.

RESEARCH

Research study #06CM, "Risk factors for leishmaniasis among deployed USAF members," MK Klassen-Fischer.

PUBLICATIONS

Journal Articles:

1. Kibadi K, Panda M, Tamfum JJ, Fraga AG, Longatto Filho A, Anyo G, Pedrosa J, Nakazawa Y, Suykerbuyk P, Meyers WM, Portaels F. New foci of Buruli ulcer, Angola and Democratic Republic of Congo. *Emerg Infect Dis.* 2008 Nov;14(11):1790-2.
2. Walsh DS, Portaels F, Meyers WM. Buruli ulcer (*Mycobacterium ulcerans* infection). *Trans R Soc Trop Med Hyg.* 2008 Oct;102(10):969-78. Epub 2008 Jul 26.

- Portaels F, Meyers WM, Ablordey A, Castro AG, Chemlal K, de Rijk P, Elsen P, Fissette K, Fraga AG, Lee R, Mahrous E, Small PL, Stragier P, Torrado E, Van Aerde A, Silva MT, Pedrosa J. First cultivation and characterization of *Mycobacterium ulcerans* from the environment. *PLoS Negl Trop Dis*. 2008 Mar 26;2(3):e178.

Abstract:

Rassaei N, Shilo K, Lewin-Smith M, Kalasinsky VF, Klassen-Fischer MK, Franks TJ. (2008). A case of pulmonary zygomycosis associated with calcium oxalate deposition within bronchial cartilage. Annual Meeting, United States and Canadian Academy of Pathology, #24.

Book Chapters:

- Procop GW, Neafie RC. Human parasitic pulmonary infections. In: *Pulmonary Pathology*, DS Zander, CF Farver, ed. 1st edition. Churchill Livingstone; 2008: pp 287-314.
- Klassen-Fischer MK, Neafie RC. Protozoal infections. In: Garner and Klintworth's *Pathobiology of Ocular Disease*, GK Klintworth, A Garner, eds. 3rd edition. Informa Healthcare; 2008: pp. 279-296.
- Klassen-Fischer MK, Neafie RC. Ocular diseases due to arthropods. In: Garner and Klintworth's *Pathobiology of Ocular Disease*, GK Klintworth, A Garner, eds. 3rd edition. Informa Healthcare; 2008: pp. 297-332.

Collaborators

Military:

- WRAMC, Infectious Disease Department: Leishmaniasis.
- WRAIR, Leishmaniasis Diagnostic Laboratory.
- WRAIR, Department of Entomology: Leishmaniasis.
- USAF: Team studying leishmaniasis in USAF.
- GEIS: Reporting infectious diseases in active duty military personnel.
- United States Army Medical Research Unit-Kenya, Walter Reed Project: Buruli ulcer.

Civilian:

- American Leprosy Mission.
- Institut Médical Evangélique, Kimpese, D. R. Congo.
- Institute of Tropical Medicine, Antwerp, Belgium.
- Centre Sanitaire et Nutritionnel (Gbemoten), Zagnanado, Republic of Benin.
- Imunobiologia, Instituto de Biologia Molecular e Celular, Porto, Portugal.
- Life and Health Sciences Research Institute, School of Health Sciences, Campus de Gualtar, Braga, Portugal.
- Damien-Dutton Society for Leprosy Aid.
- World Health Organization, Switzerland.
- National Museum of Health and Medicine.

PROFESSIONAL ACTIVITIES

Official trips:

- Board meetings of several leprosy societies. WM Meyers.
- March 2008: Denver, CO, USCAP, MK Klassen-Fischer, RC Neafie.
- March and April 2008: Geneva, Switzerland, Annual Meeting of Global Buruli Ulcer Initiative, World Health Organization, WM Meyers.
- October 2008: Athens, Greece, International Academy of Pathology, WM Meyers.

Local meetings

- March 2008: Washington, DC, AFIP, National Museum of Health and Medicine, "Triumph at Carville," WM Meyers, RC Neafie.
- Helminthological Society of Washington, triannually, RC Neafie.
- Tropical Medicine Association of Washington, monthly, RC Neafie.
- Johns Hopkins University Tropical Medicine Dinner Club, monthly, RC Neafie.
- Greater Washington Infectious Disease Society, monthly, RC Neafie.
- June 2008: Washington, DC, AFIP, National Museum of Health and Medicine, Lunchtime Lecture at the Museum, WM Meyers.

Editorial:

- Co-editors of the AFIP book, *Pathology of Infectious Diseases, Volume 2: Protozoan and*

- Invasive Arthropod Diseases*, MK Klassen-Fischer, RC Neafie, DJ Wear.
2. Histopathology Editor, *Clinical Infectious Diseases*, MK Klassen-Fischer.
 3. Reviewed manuscripts for journals *Ophthalmic Plastic and Reconstructive Surgery* and *Future Microbiology*, MK Klassen-Fischer.
 4. Reviewed manuscripts for professional journals, WM Meyers.
 5. Editor-in-Chief of the AFIP book, *Pathology of Infectious Diseases, Volume 2: Protozoan and Invasive Arthropod Diseases*, WM Meyers.



DIVISION OF MICROBIOLOGY

Mina Izadjoo, PhD
Division Chief
Date of Appointment – November 2008- present

Douglas Wear, MD
Acting Division Chief, September – November 2008

Robert Crawford, PhD
Division Chief, January – September 2008
Date of Appointment – November 1, 2003

MISSION

The Division of Microbiology provides microbial laboratory testing and consultation for federal government laboratories and is a part of Laboratory Response Network. It also provides education and research for DoD organizations worldwide for these areas of research.

ORGANIZATION

Until September 2008, the Division was organized into 8 branches and the office of the chief.

- Bacteriology – Stephen Francesconi, PhD
- Molecular Biology – Ketan Patel, PhD
- Immunology and Therapeutics – Mina Izadjoo, PhD
- Optical Spectroscopy – Kathryn S. Kalasinsky, PhD
- Virology – Sue Cross, PhD
- Quality Assurance – James Hanson, Capt, USAF, Deputy Division Chief
- Laboratory Operations – Michael Dobson, PhD

The current structure of the Division includes the following Teams:

- Molecular Diagnostic- Binxue Zhang, PhD
- Genetic Characterization- Mohammad Alavi, PhD
- Optical Spectroscopy – Kathryn S. Kalasinsky, PhD
- Virology – Sue Cross, PhD
- Quality Assurance – Avis Bullard
- BSL-2 Laboratory Operations – Thomas Shaak, Maj, USAF, Deputy Division Chief
- BSL-3 Laboratory Operations – Michael Dempsey, Maj, USAF, Deputy Division Chief

STAFF

Scientific:

- Mina Izadjoo, PhD, Division Chief
- (D) Robert Crawford, PhD, Division Chief
- (D) James Hanson, Capt, USAF, Deputy Division Chief
- (D) Michael Dobson, PhD, Chief, Laboratory Operations
- (D) Stephen Francesconi, PhD, Chief, Bacteriology
- (D) Ketan Patel, PhD, Chief, Molecular Biology
- Kathryn S. Kalasinsky, PhD, Chief, Optical Spectroscopy
- Sue Cross, PhD – Chief, Virology
- (A) Thomas Shaak, Maj, USAF, Deputy Division Chief
- (A) Michael Dempsey, Maj, USAF, Deputy Division Chief
- (D) Patrick Kennedy, Capt, USAF, BSC, Science Coordinator
- (A) Avis Bullard, Quality Assurance

- (A) Mohammad Alavi, PhD, Research Scientist
 - (A) Parmesh Dutt, PhD, Research Scientist
 - (A) Shaw-Huey Feng, PhD, Research Scientist
 - Ukkubandage Gunasinghe, PhD, Senior Research Scientist
 - (A) Hung Guochuan, PhD, Research Scientist
 - (A) Huiling Hu, PhD, Research Scientist
 - (A) Ho San Kim, PhD, Research Scientist
 - (A) Hyung-Yong Kim, PhD, Research Scientist
 - (A) Hongguang Pan, PhD, Research Scientist
 - (A) Shien Tsai, PhD, Senior Research Scientist
 - Binxue Zhang, PhD, Senior Research Scientist
 - Lalaine Anova, Project Manager
 - Robert Burgess, Microbiology Research Associate
 - Jennifer Engle, Molecular Research Associate
 - (A) Joval Gapuz, HM1, NCOIC, Laboratory Technician
 - (A) French, Shannon, HM1, Laboratory Technician
 - Justin Jay, Project Manager
 - (D) Victoria Kalasinsky, Research Associate
 - (D) Elizabeth Kurrle, Administrative Services, Chief
 - Ellen LaMorena, Molecular Research Associate
 - Vanessa Marcel, Molecular Research Associate
 - (D) Pamela Motloch, Research Associate
 - (D) Meagan Parrot, Research Associate
 - Adrien Ravizee, Research Technician
 - (A) Jose Rodriguez, Research Technician
 - (D) Sharon Seelman, Microbiology Research Associate
 - (D) April Shea, Project Manager
 - Heidi St. John, Microbiology Research Associate
 - Wendell Thomas, Microbiology Research Associate
 - Joe Thompson, Animal Research Associate
 - (D) Elizabeth Wallace, Microbiology Research Associate
- Administrative:**
- (A) Lance Thomas, MSG, NCOIC
 - (A) Atlantis Griffin, SSG, NCOIC
 - (D) Levi Horton, Administrative Assistant, Division of Microbiology

DIAGNOSTIC CONSULTATION

The Division of microbiology analyzed 32 Clinical cases in 2008.

The Division developed five new assays for microbial analysis.

National/International Consultations:

1. Federal Bureau of Investigation, Washington, DC
2. Edgewood Chemical and Biological Command, Aberdeen, MD
3. National Interagency Genome Science Coordinating Committee, Arlington, VA
4. Defense Threat Reduction Agency (DTRA) Tashkent, Uzbekistan
5. Defense Threat Reduction Agency (DTRA) Almaty, Kazakhstan
6. Department of Homeland Security, National Biological and Countermeasures Center, National BioForensic Analysis Center, Frederick, MD

Quality Assurance:

Inspection Teams:

1. The Department of Army Inspector General inspected the BSAT program at AFIP. AFIP's Biosurety program, of which the Division of Microbiology is a substantial component, was audited by the Army Inspector General.
2. MeCom conducted a Surety Management Review in June.
3. CAP.

Proficiency Exams:

Our Division successfully completed 5 proficiency surveys provided by the College of American Pathologists: these include three Bacteriology and two Laboratory Preparedness surveys.

EDUCATION

Presentations and Seminars:

The Division of Microbiology presented 2 posters and gave 2 oral presentations at scientific conferences this year. The titles can be found at the end of the division report. Continuing education seminars were given throughout the year by external and internal professionals for the scientific staff of the division.

Conferences, Workshops, and Training:

1. January 2008: AOAC and National Guard Bureau PCR Validation Training, provided by ECBC; Aberdeen Proving Ground, MD; V Marcel.
2. JBAIDS FDA Validation Training, provided by Idaho Technology; V Marcel.
3. February 24-27, 2008: 2008 ASM Biodefense and Emerging Disease Research Meeting; Baltimore, MD; M Izadjoo, L Anova, P Motloch, S Seelman, H St. John.
4. April 6-10, 2008: 1st International ASM Conference: Emerging Technologies of Medical Importance for the Diagnosis of Infectious Diseases and Detection of Pathogenic Microbes; Beijing, China; B Zhang.
5. May 7, 2008: MesoScale Diagnostics PR2 Workshop, hosted by the Division of Microbiology; Washington DC.
6. May 12-16, 2008: U.S. Army Center for Health Promotion and Preventive Medicine Shipping Class; Atlanta, GA; S Cross, S Seelman.
7. June 2-4, 2008: 109th American Society for Microbiology General Meeting; Boston, MA; M Alavi.
8. Aerosol Biology, BIOL 691 course at George Mason University; 14-25 July 2008; Manassas Virginia; L Anova, H St. John.
9. September 2008: 2008 International Brucellosis Conference; University of London, UK; M Izadjoo, L Anova, S Seelman.
10. September 24-26, 2008: PATHEMA-Burkholderia Annotation Jamboree, J. Craig Venter Institute (JCVI); Rockville, MD; B Zhang.
11. October 19-22, 2008: The American Biological Safety Association Conference; Reno, NV; M Dempsey, J Jay.

RESEARCH

Publications:

In 2008, the Division produced four manuscripts in reference journals, had one manuscript with submission pending approval, and two manuscripts in preparation for submission in 2009. A list is included at the end of the division report.

Projects:

The Division of Microbiology and Biological Defense Research Program at the Armed Forces Institute of Pathology (AFIP) constitutes an integral and significant portion of the Department of Defense Biodefense capability

1. Use of RNA Technology as a Broad Spectrum Therapeutics for Inactivation of Biowarfare Agents
2. Establishment of an Evaluation Center for "Next Generation" Diagnostic Technologies
3. Efficacy Testing of Novel Antiviral Drugs Extracted from Marine Microorganisms
4. NanoVirocides: Efficacy Testing of Novel Therapeutics for Avian Flu
5. Development of a Multiagent Bacteriophage Vaccine for Anthrax, Plaque and Botulinum neurotoxin
6. Biological Select Agent Genomic Repository
7. Defense Threat Reduction Agency (DTRA) Former Soviet Union (FSU) primary strain repository and distribution center
8. Raman Spectroscopy BSAT detection platform/database development and validation.
9. Air Force Proficiency Test coordination
10. Genetic characterization of infectious agents
11. Immuno and molecular assays development
12. New Diagnostic platform evaluation

Research Funds Received:

1. Use of RNA technology to inhibit expression of virulence genes from biowarfare agents (\$1,369K)

2. Biological Threat Reduction Program for the Soviet Union (\$600K)
3. Proficiency Testing (\$305K)
4. Genomic Repository Operation (\$378K)
5. Molecular characterization of Unified Culture Collection (\$290K)
6. Efficacy testing of novel antiviral drugs extracted from marine microorganisms (\$325K)
7. Establishment of an Evaluation Center for “Next Generation” Diagnostic Technologies (\$295K)
8. Development of a multiagent bacteriophage vaccine for anthrax, plaque and botulinum neurotoxin: (\$119K)

OTHER ACCOMPLISHMENTS

Collaborators:

Military/Federal:

Dr. Alan Samuels, Edgewood Chemical Biological Command, Optical Detection of Threat Antigens.

Civilian:

1. Dr. Trevor Castor, Aphios Corporation, Boston, MA. Development of novel antiviral drugs.
2. Dr. Sidney Altman (Nobel Prize Winner), Yale University, New Haven, CT. Inactivation of biowarfare agents using an RNA technology.
3. Dr. Aurba Bhattacharjee. Walter Reed Army Institute of Research. Silver Spring, MD. Brucella vaccine research.
4. Shanmuga Sozhamannan, Ph.D, Biological Defense Research Directorate, Naval Medical Research Center, BDRD Annex, Rockville, MD 20852
5. Dr. Anil Diwan, NanoViricides, West Haven, CT.
6. Pat Treado, ChemImage Corporation, Pittsburgh, PA, Raman Chemical Imaging Biothreat Detection
7. Dr. Andres Salazar, Oncovir, Washington DC.

Committees (Extramural)

Military:

1. USAF Laboratory Bio-defense Steering Committee – S Francesconi and P Kennedy
2. Integrated Consortium of Laboratory Networks (Proficiency Test Subcommittee) – P Kennedy and J Cullen

Review/Editorial Boards:

1. *Spectroscopy* – KS Kalasinsky
2. *Spectrochimica Acta Part A: Molecular Spectroscopy* – KS Kalasinsky
3. *Vaccine* – M Izadjoo

Offices and Committee Membership in National and International Societies:

1. Board of Managers, Coblenz Society – KS Kalasinsky
2. Newsletter Editor, Coblenz Society – KS Kalasinsky
3. Lippincott National Award Selection Committee – KS Kalasinsky

Committees (Intramural):

1. AFIP Biosurety Committee- M Dobson (until August 2008) and M Izadjoo (August 2008-present).
2. AFIP Institutional Review Board for Human Subjects – KS Kalasinsky
3. AFIP BioSafety Committee – KS Kalasinsky

PRESENTATIONS

1. March 2-7, 2008: New Orleans, LA, Pittsburgh Conference on Analytical Chemistry and Spectroscopy “Raman Identifications of Biothreats,” KS Kalasinsky, AA Shea, PJ Treado, MP Nelson, TS Powers.
2. September 2008: University of London, International Brucellosis Conference, “A Study on the Limit of Detection for Brucella melitensis 16M in Spiked Human Clinical Samples and Infected Animal Tissues,” L Anova, H St. John, J Thompson, M Izadjoo.
3. September 2008: University of London, International Brucellosis Conference, “A Novel

Therapeutic Method for Inactivation of *Brucella* sp,” M Izadjoo, M Alavi, S Seelman, L Anova, S Altman.

Posters:

1. June 1-5, 2008: “NanoChip 400 System Applied to Detection of Biothreat Agents Following PCR (RT-PCR) Amplification (Reagents and Protocols Comparison)” in the 108th ASM General Meeting (Poster Number: Q-159). Boston, MA.
2. 2008: S-C Lo, S Tsai, B-J Li, JF Rodriguez, S-H Feng, S Zhang, H-Y Kim, H Ge, N Zou. Passive immune protection by monoclonal antibodies against lethal infections of *Burkholderia pseudomallei* and *Burkholderia mallei* in mice. Poster presentation at The 108th General Meeting of American Society for Microbiology, Boston, Massachusetts (Abstract: D-025).

Publications:

Journal Articles (published):

1. Izadjoo MJ, Mense MG, Bhattacharjee AK, Hadfield TL, Crawford RM, Hoover DL. A study on the use of male animal models for developing a live vaccine for brucellosis. *Transbound Emerg Dis*. 2008 May;55(3-4):145-51.
2. Xiao G, Lundblad EW, Izadjoo MJ, Altman S. Inhibition of expression in *Escherichia coli* of a virulence regulator MglB of *Francisella tularensis* using external guide sequence technology. *PLoS ONE*. 2008;3(11):e3719. Epub 2008 Nov 13.
3. Ko JH, Izadjoo MJ, Altman S. Inhibition of expression of virulence genes of *Yersinia pestis* in *Escherichia coli* by external guide sequences and RNase P. *RNA*. 2008 Aug;14(8):1656-62. Epub 2008 Jun 20.
4. Zou N, Tsai S, Feng SH, Newsome T, Kim H-Y, Li B, Zhang S, Lo S-C. Relationship between antigenicity and pathogenicity for *Burkholderia pseudomallei* and *Burkholderia mallei* revealed by a large panel of mouse monoclonal antibodies. *Hybridoma* (Larchmt) 2008; 27(4): 231-240.

Proposals:

1. Evaluation of Novel Therapeutics Against Biowarfare Agents (Izadjoo/PI)
2. A feasibility Study on Candidate Immunodetection Systems (Izadjoo/PI)
3. Use of Nasal Hiltonol™ (Poly-ICLC) as a Broad Spectrum Therapeutics for Biowarfare Agents (Izadjoo/CoPI)
4. Digital Microfluidic Platform for Rapid Detection of Biothreat Agents (Izadjoo/CoPI)
5. Molecular Characterization of Biowarfare Agents (Izadjoo/PI)

DIVISION OF MOLECULAR PATHOBIOLOGY



Mina Izadjoo, PhD
Chief
Date of Appointment – 21 Nov 2008

STAFF

Medical:

Mina Izadjoo, PhD, Distinguished Scientist
(D) Shyh-Ching Lo, MD, PhD, left 21 Nov 2008

Scientific:

Shaw-Huey Feng, PhD, Immunologist/Scientist, ARP
Hyung-Yong Kim, PhD, Research Scientist, ARP
Bing-Jie Li, MD, Molecular Microbiologist, ARP
Hong, Ge, MD, PhD, Research Scientist, ARP (left)
Shien Tsai, PhD, Senior Research Scientist, ARP
Shimin Zhang, MD, PhD, Senior Research Scientist, ARP
Nianxiang Zou, PhD, Research Scientist, ARP (left)
José Rodriguez, Research Technician, ARP
Parmesh Dutt, PhD, Research Scientist, ARP

IMPACT

1. We continued to develop and characterize monoclonal antibodies that could differentiate between closely related *Burkholderia pseudomallei* and *Burkholderia mallei* and from other non-pathogenic *Burkholderia* bacteria.
2. We have been actively conducting studies on developing human monoclonal antibodies against various viral agents by directly immortalizing human B memory cells in the peripheral blood. This is a highly innovative approach of developing valuable human monoclonal antibodies.
3. We have published the study results of developing human single-chain antibody (scFv) monoclonal antibody against *Burkholderia pseudomallei* and *Burkholderia mallei*.
4. We have successfully constructed human IgGs from scFv monoclonal antibodies selected from phage-displayed combinatorial human single-chain antibody (scFv) libraries. The recombinant human IgGs specifically recognize complex whole cell antigens of *Burkholderia* bacteria.
5. We have prepared more mouse ascitic fluids monoclonal antibodies that could specifically recognize bacteria with major biothreat concerns – *Bacillus anthracis*, *Yersinia pestis* and *Francisella tularensis*. These reagents are critical in diagnosis or detection of infections by these biothreat agents.
6. We published the study results of classification and characterization of more than 100 monoclonal antibodies reacting against *Burkholderia pseudomallei* and *Burkholderia mallei*.
7. In collaboration with outside scientists, we published the findings of BMP-2 expression in cells induced by mycoplasmal infections.
8. Our laboratory has continued to study other unknown factors that may affect the disease progress of chronic debilitating illnesses of human, including AIDS.

MISSION

The Division of Molecular Pathobiology provides consultation services to the AFIP, other federal agencies, civilian institutions, clinicians, and research scientists on the pathology of unusual infections, especially by mycoplasmas, chlamydias, and viruses. The Division

provides consultation on electron-microscopic diagnosis and studies of bacteria, viruses, and mycoplasmas, on various disease processes related to infections by microorganisms, and on molecular techniques in diagnosis and research. The laboratory of the Division also conducts molecular studies of the submitted cases needed for microbial identification and speciation by amplifying the highly conserved ribosomal sequences from the genetic material retrieved from the paraffin-blocks followed by sequencing. The molecular study information could often complement histopathology findings for the final consultation report.

The Division has expanded its service to the military beginning in 2003 through its efforts for the Department of Homeland Security and the Defense Threat Reduction Agency (DTRA) of DoD. Both the military and Homeland Security urgently need reagents to rapidly detect and differentiate biowarfare agents, specific antibodies for human therapeutic use, and vaccines against these agents of bioterror. The Division has been preparing from mouse ascitic fluids monoclonal antibodies that could specifically recognize *Bacillus anthracis*, *Yersinia pestis* and *Francisella tularensis*. In addition, the Division has developed a series of monoclonal antibodies that could differentiate between closely related 2 Category B priority pathogens of bioterror, *Burkholderia pseudomallei* and *Burkholderia mallei*, and from other nonpathogenic *Burkholderia* bacteria. The laboratory under the Division has been using phage-displayed combinatorial human single chain antibody (scFv) libraries to develop human monoclonal antibodies against complex antigens, specifically whole *Burkholderia* bacteria antigens. This represents a new approach in the development of monoclonal antibodies, based on the conformation (shape and charge) of protein antigens. Moreover, the Division is actively developing human monoclonal antibodies against pox viruses as potential therapeutics in human. Both the projects of developing monoclonal antibodies specific to pathogenic *Burkholderia* bacteria and pox viruses are supported by grants from the DTRA. The laboratory continues to study the AIDS-associated mycoplasmas originally discovered in this laboratory and continues to search for the unusual microbes as potential etiologic agents of various human chronic illnesses.

The Division supports the AFIP's educational program by providing lectures, courses, and training for visiting scientists, fellows, and students. The scientists of the Division present their scientific findings at the National and International Conferences. The Division also actively participates in scientific education and training for high school and college students in every summer.

CONSULTATION

Presentations and Studies:

In addition to consultation support in electron microscopic and immunohistochemical diagnosis of unusual microbes for the Institute, division staff conduct molecular studies by amplifying ribosomal genes of bacteria and fungi for molecular identification and speciation. All consultations rendered by this division are reported with the Division of Infectious and Tropical Disease Pathology.

EDUCATION

Presentations and Seminars:

The division trained 5 students in the 2008 AFIP summer program.

RESEARCH

Publications:

Journal Articles:

1. Zou N, Tsai S, Feng SH, Newsome T, Kim HY, Li B, Zhang S, Lo SC. Relationship between antigenicity and pathogenicity for *Burkholderia pseudomallei* and *Burkholderia mallei* revealed by a large panel of mouse MAbs. *Hybridoma* (Larchmt). 2008 Aug;27(4):231-40.
2. Jiang S, Zhang S, Langenfeld J, Lo SC, Rogers MB. Mycoplasma infection transforms normal lung cells and induces bone morphogenetic protein 2 expression by post-transcriptional mechanisms. *J Cell Biochem*. 2008 May 15;104(2):580-94.

Projects

1. Production of mouse ascitic fluid with monoclonal antibodies specifically against various biological warfare agents. (UBWA)
2. Effect of mycoplasmas on steroid receptor functions. (UBUY)
3. Development of MAbs as therapeutics against *Burkholderia pseudomallei* and *Burkholderia*

mallei. (UB5O)

4. Mycoplasmal infection and immortalization of human peripheral blood mononuclear cells. (UBIM)

Summary of Research Program. Thru 2008:

1. The laboratory continued to develop and characterize specific monoclonal antibodies to *Burkholderia pseudomallei* and *Burkholderia mallei*, category B biological warfare agents (A 3-year project supported by DTRA).
2. The laboratory developed techniques of screening phage-displayed combinatorial human single-chain antibody (scFv) libraries against complex whole bacteria antigens of *B. pseudomallei* and *B. mallei*.
3. The laboratory published the study results of developing human scFv monoclonal antibodies that can differentiate pathogenic and non-pathogenic *Burkholderia* sp, using phage displayed scFv libraries.
4. We have successfully secured the continuing support (in 2nd year of study) of an external grant support to develop “affinity-improved” therapeutic monoclonal antibodies against pathogenic *Burkholderia pseudomallei* and *Burkholderia mallei*.
5. We have successfully secured the continuing support (the 3rd year study) of an external grant support from the Medical Chemical and Biological Defense Science and Technology Program (DTRA) of the US Army Research and Material Command and successfully to develop human monoclonal antibodies against pox viruses.
6. The laboratory continues to conduct molecular studies of the submitted cases needed for microbial identification and speciation by amplifying the highly conserved ribosomal sequences from the genetic material retrieved from the paraffin-blocks followed by sequencing.
7. Our laboratory continued to develop and assess highly sensitive and specific techniques to identify and clone genetic materials of previously unknown organisms that fail to grow in our current culture systems.

Collaborators:

Military:

Naval Medical Research Institute, Silver Spring, Md

Civilian:

Clinical Center, National Institutes of Health, Bethesda, Md

Committees (Extramural):

Shyh-Ching Lo:

Member, Institutional Biosafety Committee (IBC), Walter Reed Army Medical Center, Washington, DC.

Editorial Board:

Methods in Cell Science, Shyh-Ching Lo

DIVISION OF AIDS PATHOLOGY



Ann M. Nelson, MD
Chief
Date of Appointment – 1 September 1994

STAFF

Medical:
Ann M. Nelson, MD

IMPACT

The Division of AIDS Pathology and Emerging Infectious Diseases supports the United States Department of Defense and serves the American people by providing medical expertise in HIV-related and emerging infections in diagnostic consultation, education, and research to enhance the health and well-being of the people we serve. Through collaborations and education, the Division provides support for pathologists working on HIV and AIDS in developing countries.

CONSULTATION

The division has developed the world's largest repository (>7,000 cases) of the pathology of HIV infection and AIDS. The collection dates back to the 1970s and includes material for original cases reported to the CDC, and autopsy, surgical, and cytology material from the US, Africa, Central and South America, Europe, and Asia. Material from the repository has been used for 2 books and courses on the pathology of emerging infections and for contributions to the NCI HIV-malignancy bank. New collaborations in Telepathology consultation and HIV pathology are under development with Makerere Medical School in Uganda.

<i>Cases</i>	<i>Completed</i>
Military	10
Army (1)	
Navy (6)	
Air Force (3)	
Federal	40
VA (40)	
USPHS (0)	
Civilian	16
Interdepartmental	16
Total	82

EDUCATION

Adjunct professor of pathology, Virginia College of Osteopathic Medicine, VA 2007-present.

Presentations (AM Nelson):

1. March 2008: Denver, CO, 97th Annual Meeting USCAP. "HIV and Mast Cells in Human Tissue," Nelson AM, Auerbach A, Man Y-G. (poster).
2. July 2008: La Paz, Bolivia, International Academy of Pathology, Bolivian Division, "AIDS in the Era of Antiretroviral Therapy," AM Nelson.

3. July 2008: La Paz, Bolivia, International Academy of Pathology, Bolivian Division "The Pathology of Antiretroviral Therapy," AM Nelson.
4. July 2008: La Paz, Bolivia, International Academy of Pathology, Bolivian Division "Immune Restoration Inflammatory Syndrome," AM Nelson.
5. July 2008: Coroico, Bolivia, International Academy of Pathology, Bolivian Division "Distance Learning and Telepathology," AM Nelson.
6. October 2008: Mombasa, Kenya APECSA (Association of Pathologists of East, Central and Southern Africa). "Recommendations of the WHO Consensus Meeting on Pathology," AM Nelson.
7. November 2008: Kampala, Uganda, Grand Rounds Makerere University, College of Health Sciences, "Pathology in Africa, Where do we go from here?" AM Nelson.
8. November 2008: Kampala, Uganda, Makerere University, College of Health Sciences "Goals and Objectives, Fullbright Fellowship," AM Nelson.

RESEARCH

Journal Articles:

Hiatt KM, Nelson AM, Lichy JH, Fanberg-Smith JC. Classic Kaposi sarcoma in the United States over the last two decades: a clinicopathologic and molecular study of 438 non-HIV-related Kaposi sarcoma patients with comparison to HIV-related Kaposi sarcoma. *Mod Pathol*. 2008, 21:572-82.

Projects:

"Improving HIV/AIDS Diagnostic Knowledge and Skills among Ugandan Pathologists and Trainees: Use of Case Method Instruction." Tibotec REACH Grant with Makerere University. AM Nelson, DR Butler (AFIP), RL Lukande (Makerere).

PROFESSIONAL ACTIVITIES

Intramural:

1. Member, AskAFIP™ Development Team (eReference in Pathology and Radiology), 2003-present.
2. Registrar, Registry of AIDS Pathology, 1994-present.
3. Member, Oversight Committee on Continuing Medical Education, 1998-present.
4. Member, Biosafety Committee, 1992-1996, 1998-present.
5. Member, Joint Pathology Center Working Group, AFIP internal, 2008.

Official Trips:

1. March 2008: USCAP 97th Annual Meeting, Denver, CO.
2. May 2008: WHO Consensus Meeting on Pathology, Dar es Salaam.
3. July 2008: International AIDS Conference, Mexico City.
4. July 2008: IAP Annual Meeting, Bolivian Division, La Paz and Coroico, Bolivia.
5. October 2008: APECSA Conference, Mombasa, Kenya.

Extramural:

1. Co-covener/ Rapporteur, WHO Consensus Meeting on Pathology, Dar es Salaam, Tanzania, 2008.
2. Global Health Council, Tuberculosis Implementers Working Group.
3. Global Health Council, Abstract Review Committee, 2006-2008.
4. American Society of Clinical Pathology, Institute Advisory Group, 2006-present.
5. Founder and Vice-president, International Pathology and Laboratory Medicine Initiative, 2006-present.

Memberships:

1. Fellow, College of American Pathologists.
2. Fellow, American Society of Clinical Pathologists.
3. Global Health Council.
4. Binford-Dammin Society of Infectious Disease Pathologists.
5. History of Pathology Society.
6. Infectious Disease Society of America.
7. International AIDS Society.

Editorial Boards:

1. Clinical Infectious Diseases, Histopathology Editor, Reviewed photomicrographs for various articles. AM Nelson.
2. Reviewed 6 articles for various journals. AM Nelson.
3. *Pathology – Research and Practice*, Editorial Board 2002-present, AM Nelson.

Honors:

1. Fulbright Fellowship, African Regional Research Program, AIDS and AIDS Related Conditions, Uganda and Tanzania, 2008-2009.
2. Lic. Antonio Leño Alvarez del Castillo Distinguished Alumnus in Health Sciences, Universidad Autonoma de Guadalajara, February 2008.

ADVANCED PATHOLOGY

GROUP 4

Hepatic & Gastrointestinal Pathology

Pulmonary & Mediastinal Pathology

Radiologic Pathology

Cardiovascular Pathology





Zachary D. Goodman, MD, PhD
Co-Chair
Date of Appointment — May 2004



Leslie H. Sobin, MD, SES
Co-Chair
Date of Appointment — May 2004

DEPARTMENT OF HEPATIC AND GASTROINTESTINAL PATHOLOGY



DIVISION OF HEPATIC PATHOLOGY

Zachary D. Goodman, MD, PhD
Chief
Date of Appointment – 1 January 1991

STAFF

Medical

Zachary D. Goodman, MD, PhD, Chief
(A) Jeremy S. Bragdon, Maj, USAF, MC, Staff Pathologist
(D) Leonard Howard, LTC, MC, USA, Staff Pathologist
Prakash Jha, MD, Research Staff Pathologist, ARP
Kathryn Johnson, CPT, USA, MC
Hala Makhoul, MD, PhD, Research Staff Pathologist, ARP
Anupamjit K. Mehrotra, MD, Staff Pathologist
Lionel Rabin, MD, Staff Pathologist
(D) Janet Shaw, Lt Col, USAF, MC, Staff Pathologist

Scientific

Michelle Parks, Director of Morphometry Laboratory, ARP

Administrative

Fanny X. Revelo, Administrative Officer

IMPACT

In 2008 the division continued its tradition of collaboration with other federal agencies, academic medical centers, and industry to maximize our impact on the medical community. Participation in multicenter clinical trials sponsored by NIH and pharmaceutical companies has led to ever-increasing numbers of fruitful collaborations and publications, and has provided funding for intramural research. In education, the annual Hepatic Pathology Course was again highly successful, and members of the staff are frequently invited to speak at national and international meetings. The continuing flow of cases submitted for consultation shows that the division's reputation for diagnostic expertise remains undiminished.

CONSULTATION

<i>Cases</i>	<i>Completed</i>
Military	392
Army (148)	
Navy (175)	
Air Force (69)	
Federal	510
VA (508)	
USPHS (2)	
Civilian	699
Interdepartmental	84
<hr/> Total	<hr/> 1,703

Most cases submitted to the division pose diagnostic problems for the contributing pathologist, particularly those that deal with medical diseases of the liver, such as chronic cholestatic disorders and steatohepatitis. Neoplasms represent only about 20% of consultation material. Diagnoses were changed in 56% of cases with major changes with therapeutic implications in 4%. In 15% of cases the contributor was unable to suggest any diagnosis.

EDUCATION***Courses:***

Members of the division gave a total of 28 lectures. They participated in 3 non-AFIP courses, 1 nondepartmental AFIP course, and the 29th Annual Course in Hepatopathology, attended by 85 participants for 255 training days.

Departmental Conferences:

Division staff conducted daily microscopic pathology conferences for the staff and rotating fellows and residents.

Trainees:

The division provided training to 22 civilian and 4 military pathologists and gastroenterology fellows, for a total of 520 training days.

Faculty Appointments:

1. Clinical Professor, USUHS, ZD Goodman.
2. Adjunct Associate Professor, Georgetown University, ZD Goodman.
3. Adjunct Professor, Temple University, Philadelphia, PA, L Rabin.
4. Professor, Ain Shams University School of Medicine, Cairo, Egypt, HR Makhoul.

Committees (Intramural):

AFIP Credentials Committee – L Rabin

Presentations:

1. January 2008: AFIP Grand Round Videoteleconference (VTC): "Hepatic fibrosis," HR Makhoul.
2. Jan 2008: Washington, DC, "George Washington University, Department of Pathology, Neoplasms of the liver," ZD Goodman.
3. February 2008: Washington, DC, AFIP Staff Conference: "Clinicopathological, immunohistochemical and molecular study of 9 cases of ossifying nested epithelial tumors of the liver (ONSET)," HR Makhoul.
4. Feb 2008: Washington, DC, AFIP Weekly Professional Staff Conference, "Pathology of chronic hepatitis C in children," ZD Goodman.
5. March 2008: Denver, Co, USCAP, Liver pathology specialty conference. Case 3; "Ossifying nested stroma-epithelial tumors of the liver," HR Makhoul.
6. March 2008: Washington, DC, Sophomore Pathology Course, Georgetown University School of Medicine, "Introduction to liver disease," (4 lectures). ZD Goodman.
7. March 2008: Alexandria, VA, AFIP course "Anatomic Pathology Review and Update," "Diseases of the liver," ZD Goodman.
8. May 2008: Sydney, Australia, Invited Overseas Speaker at 33rd Annual Scientific Meeting

- of the Australasian Division of the International Academy of Pathology, "Tumors of the liver – hepatocellular carcinoma and cholangiocarcinoma," "Hepatitis in the 21st century," "Slide seminar on diseases of the liver," ZD Goodman.
9. June 2008: Cologne, Germany, International Liver Study Group, "Infections of the liver" and "Progression of fibrosis in chronic hepatitis C," ZD Goodman.
 10. July 2008: Padua, Italy, Laennec Liver Pathology Society, "Progression of fibrosis in chronic hepatitis C," ZD Goodman.
 11. September 2008: Mineola, NY, Nassau Count Society of Pathologists, "Neoplasms of the liver" and "Diseases of bile ducts," ZD Goodman.
 12. September 2008: Silver Spring, MD, AFIP course "Hepatopathology 2008," "Introduction to Liver Pathology," "Biopsy diagnosis of hepatitis," "Biopsy diagnosis of cholestatic Liver disease," "Drug-induced liver disease," ZD Goodman.
 13. September 2008: AFIP course "Hepatopathology 2008," "Neoplasms of the liver," AK Mehrotra.
 14. September 2008: AFIP course "Hepatopathology 2008," "Fibrosis, cirrhosis and pre-neoplastic lesions," HR Makhoulf
 15. September 2008: AFIP course "Hepatopathology 2008," "Unknown cases," L Rabin.
 16. September 2008: Baltimore, MD, Board Review in Gastroenterology, "Liver histopathology," ZD Goodman.
 17. September 2008: Jackson Hole, WY, HIV & Liver Disease 2008, "Hepatic pathology in HIV," ZD Goodman.
 18. October 2008: Athens, Greece, International Academy of Pathology (IAP): Slide Seminar on infectious diseases of the liver; History of ancient Egyptian medicine, HR Makhoulf.
 19. November 2008: Algiers, Algeria, 20th Congress of the International Academy of Pathology (IAP) Arab Division: Drug-induced liver injury (DILI): practical approach. HR Makhoulf.
 20. December 2008: Cairo, Egypt, International Pathology Center (IMC) Annual Histopathology Training Course: Grading and staging of chronic hepatitis: what do clinicians need to know? How to interpret a liver biopsy? Practical approach to diagnosis, neoplastic and preneoplastic lesions of the liver, Differential diagnosis and diagnostic criteria, HR Makhoulf.

RESEARCH

Journal Articles

1. Abdul-Al HM, Makhoulf HR, Wang G, Goodman ZD. Glypican-3 expression in benign liver tissue with active hepatitis C: Implications for the diagnosis of hepatocellular carcinoma. *Human Pathol.* 2008; 39:209-212.
2. Dichiaro AJ, Atkinson M, Goodman Z, Sherman KE. Ciprofloxacin-induced acute cholestatic liver injury and associated renal failure. Case report and review. *Minerva Gastroenterol Dietol.* 2008; 54:307-315.
3. Fontana RJ, Goodman ZD, Dienstag JL, Bonkovsky HL, Naishadham D, Sterling RK, Su GL, Ghosh M, Wright EC. Relationship of serum fibrosis markers with liver fibrosis stage and collagen content in patients with advanced chronic hepatitis C. *Hepatology.* 2008; 47:789-798.
4. Goodman ZD, Makhoulf HR, Liu L, Balistreri W, Gonzalez-Peralta RP, Haber B, Jonas MM, Mohan P, Molleston JP, Murray KF, Narkewicz MR, Rosenthal P, Smith LJ, Robuck PR, Schwarz KB. Pathology of chronic hepatitis C in children: Liver biopsy findings in the Peds-C Trial. *Hepatology.* 2008; 47:836-843.
5. Goldwire FW, Norris WE, Koff JM, Goodman ZD, Smith MT. An unusual presentation of primary sclerosing cholangitis. *World J Gastroenterol.* 2008; 14:6748-6749.
6. Jarrar MH, Baranova A, Collantes R, Ranard B, Stepanova M, Bennett C, Fang Y, Elariny H, Goodman Z, Chandhoke V, Younossi ZM. Adipokines and cytokines in non-alcoholic fatty liver disease (NAFLD). *Aliment Pharmacol Ther.* 2008; 27:412-421.
7. Mishra P, Nugent C, Afendy A, Bai C, Bhatia P, Afendy M, Fang Y, Elariny H, Goodman Z, Younossi ZM. Apnoeic-hypopnoeic episodes during obstructive sleep apnoea are associated with histological nonalcoholic steatohepatitis. *Liver Int.* 2008; 28:1080-1086.
8. Nguyen TT, Gorman B, Shields D, Goodman Z. Malignant hepatic angiomyolipoma: Report of a case and review of literature. *Am J Surg Pathol.* 2008; 32:793-798.
9. Schiff E, Simsek H, Lee WM, Chao YC, Sette Jr H, Janssen HL, Han SH, Goodman Z, Yang J, Brett-Smith H, Tamez R. Efficacy and safety of entecavir in patients with chronic

- hepatitis B and advanced hepatic fibrosis or cirrhosis. *Am J Gastroenterol.* 2008;103:2776-2783.
10. Younossi ZM, Jarrar M, Nugent C, Randhawa M, Afendy M, Stepanova M, Rafiq N, Goodman Z, Chandhoke V, Baranova A. A novel diagnostic biomarker panel for obesity-related nonalcoholic steatohepatitis (NASH). *Obes Surg.* 2008; 18:1430-1437.

Abstracts:

1. Al-Daraji W, Makhlof HR, Miettinen M, Montgomery EA, Goodman ZD, Fanburg-Smith JC. Primary gallbladder sarcoma: 18 new cases. *Modern Pathol.* 2008; 21(Suppl 1):298A.
2. Hu KQ, Schiff ER, Kowdley KV, Min A, Schiffman ML, Lee WM, Goodman ZD, Dau LO, Flaherty JF. Histological evidence of active liver injury in HBeAg-positive and HBeAg-negative chronic hepatitis B patients with normal or minimally elevated alanine transaminases. *J Hepatol.* 2008; 48:S243.
3. Johnson K, Makhlof H, Fanburg-Smith J, Dauterman P, Goodman Z. Carcinosarcoma of the liver. *Histopathology.* 2008; 53 (Suppl 1):258.
4. Liaw YF, Chang TT, Wu SS, Schiff ER, Han KH, Lai CL, Safadi R, Lee SS, Halota W, Goodman ZD, Zhang H, Hindes R, Iloeje U, Beebe S, Kreter B. Long-term Entecavir therapy results in reversal of fibrosis/cirrhosis and continued histologic improvement in patients with HBeAg(+) and (-) chronic hepatitis B: Results from studies ETV-022, -027 and -901. *Hepatology.* 2008; 48:706A
5. Makhlof HR, Abdul-al HM, Goodman ZD. Ossifying desmoplastic nested epithelial-spindle tumors of the liver: a clinicopathologic and immunohistochemical study of 8 cases. *Modern Pathol.* 2008. 21(Suppl 1):310-311A.
6. McHutchison JG, Goodman ZD, Makhlof HR, Rodriguez-Torres M, Shiffman ML, Rockey DC, Husa P, Chuang WL, Theodore D, Brigandi RA, Webster A, Schultz M, Watson HA, Stancil B, Fox SL, Gartland MJ, Gardner SD. Double-blind, randomized, placebo-controlled, multi-center, phase II dose-ranging study to assess the antifibrotic activity of farglitazar in chronic hepatitis C infection. *Hepatology.* 2008; 48:1139A.
7. Younossi ZM, Jarrar M, Nugent C, Randhawa M, Afendy M, Stepanova M, Afendy A, Rafiq N, Goodman Z, Chandhoke V, Baranova A. Validation of a diagnostic biomarker panel for nonalcoholic steatohepatitis (NASH). *J Hepatol.* 2008; 48:S14.

Book Chapter:

Goodman Z. Histopathology of infection. In: Lai CL, Locarnini S, eds: *Hepatitis B Virus*, Second edition. International Medical Press, London; 2008; pp. 10.1-10.14.

Projects:

1. The HALT-C Trial: a randomized controlled trial to evaluate the safety and efficacy of long-term peginterferon alfa-2a for treatment of chronic hepatitis C in patients who failed to respond to previous interferon therapy.
2. Morphometric analysis of progression of fibrosis in advanced chronic hepatitis C.
3. Evaluation of liver histology in clinical trials of entecavir for treatment of chronic hepatitis B infection.
4. Evaluation of liver histology in clinical trials of telbivudine for treatment of chronic hepatitis B infection.
5. Evaluation of liver histology in clinical trials of clevudine for treatment of chronic hepatitis B infection.
6. Evaluation of liver histology in the PEDS-C Trial: pegylated interferon +/- ribavirin for children with hepatitis C.
7. Evaluation of liver histology in a multicenter study of the epidemiology of nonalcoholic fatty liver disease (Epi-NAFL) with genomic and proteomic correlations.
8. Evaluation of liver histology in multicenter assessment of liver disease in persons with chronic hepatitis B and HIV infection in the era of highly active antiretroviral therapy.
9. Evaluation of liver histology in "Suppressive long-term management of hepatitis C virus (HCV) and HIV-1 coinfecting subjects (SLAM-C)"
10. Evaluation of liver histology in clinical trials of the antifibrotic activity of GI262570 in chronic hepatitis C subjects with hepatic fibrosis who have failed prior antiviral therapy.
11. Liver enzyme abnormalities and nonalcoholic fatty liver disease among HIV-infected persons
12. Automated quantification of lipid droplets in human liver tissue sections.
13. Ossifying nested stromal-epithelial tumors of the liver.

Collaborators:

Military/Federal

1. NIH, NIDDK Liver Unit and NCI Laboratory of Pathology: HALT-C Trial.
2. San Diego Naval Hospital Division of Gastroenterology and Uniformed Services University of the Health Sciences Division of Infectious Disease: Liver enzyme abnormalities and nonalcoholic fatty liver disease among HIV-infected persons

Civilian (and Civilian/Military)

1. New England Research Institutes, University of Washington Laboratory of Virology, University of Massachusetts, Massachusetts General Hospital, St Louis University, University of Colorado, University of California at Irvine, University of Texas Southwestern, University of Southern California, University of Michigan, Medical College of Virginia Divisions of Gastroenterology/Hepatology and Departments of Pathology: HALT-C Trial.
2. Johns Hopkins University, University of Florida, Harvard University, University of Cincinnati, Georgetown University, Indiana University, Columbia University, University of California San Francisco, University of Pennsylvania, University of Washington: PEDS-C Trial.
3. Bristol-Meyers Squibb Pharmaceutical Research Institute: Entecavir for treatment of chronic hepatitis B infection.
4. Idenix Pharmaceuticals and Novartis Pharmaceuticals: Telbivudine for treatment of chronic hepatitis B infection.
5. Pharmasset, Inc: Evaluation of liver histology in clinical trials of clevudine for treatment of chronic hepatitis B infection.
6. GlaxoSmithKline Company: GI262570 in chronic hepatitis C subjects with hepatic fibrosis who have failed prior antiviral therapy.
7. Inova Fairfax Hospital (Georgetown University) Center for Liver Disease and George Mason University: Multicenter study of the epidemiology of nonalcoholic fatty liver disease (Epi-NAFL).
8. Johns Hopkins University, Divisions of Gastroenterology and Infectious Diseases: Multicenter assessment of liver disease in persons with chronic hepatitis B and HIV infection in the era of highly active antiretroviral therapy.
9. University of Cincinnati and Massachusetts General Hospital (Harvard University): The SLAM-C Trial
10. Vala Sciences, Inc.: Automated quantification of lipid droplets in human liver tissue sections.

PROFESSIONAL ACTIVITIES

Editorial Board

Annals of Diagnostic Pathology, ZD Goodman

DIVISION OF GASTROINTESTINAL PATHOLOGY



Leslie H. Sobin, MD, SES
Chief
Date of Appointment – 1 January 1991

STAFF

Medical:

- Leslie H. Sobin, MD, FRCPath, Chief; Director, Center for Scientific Publications
- (A) Jeremy S. Bragdon, Maj, USAF, MC, Staff Pathologist
- Nancy S. Dow, LTC, MC, USA, Staff Pathologist
- (D) Leonard N. Howard, LTC, USA, MC, Staff Pathologist
- Kathryn M. Johnson, CPT, MC, USA, Staff Pathologist
- Anupamjit K. Mehrotra, MD, Staff Pathologist
- (D) Janet C. Shaw, Lt Col, USAF, MC, Staff Pathologist

Administrative:

Nawera Haque, Secretary, ARP

IMPACT

The division's impact was impressive.

- 34 lectures
- Continued success of the highly acclaimed Annual Gastrointestinal Surgical Pathology Course: Endoscopic Biopsies of the Gastrointestinal Tract
- The Virtual Gastrointestinal Endoscopic Biopsy Course, which provides CME credits
- Gastrointestinal lecture series for medical students at USUHS and Georgetown University
- Research collaborations with AFIP departments of Soft Tissue Pathology and Radiologic Pathology
- Regular participation in WR/NNMC gastroenterology conferences
- New collaboration with the online journal, *Visual Human Journal of Endoscopy* (WWW.VHJOE.COM) for the regular appearance of "Cases from the Armed Forces Institute of Pathology"

CONSULTATION

The total number of consultation cases was about 2% more than in 2007 with a 3% decrease in military cases, a 2.5% increase in VA cases, and an 11% decrease in civilian cases.

Agreement between submitted contributors' diagnoses and AFIP diagnoses:

- Complete agreement in 37% of cases
- Disagreement in 55%
- Major disagreement in 1%
- No diagnosis submitted in 7%

Cases received represented primarily neoplastic and precancerous lesions, as well as inflammatory diseases. Among the relatively uncommon lesions that are unusually prominent in the division's accessions are carcinoids, gastrointestinal stromal tumors, lymphomas, and appendiceal mucinous tumors. Surveillance biopsies for dysplasia or invasion in colorectal polyps and evaluation of dysplasia in cases of ulcerative colitis and Barrett esophagus were prominent, Barrett lesions accounting for about 15% of accessions. The last of these is particularly frequent because of its diagnostic difficulties. Staff members also participate in the review of consultation cases in the Division of Hepatic Pathology. A GI radiology-pathology sign-out conference is held monthly.

<i>Cases</i>	<i>Completed</i>
Military	867
Army (414)	
Navy (178)	
Air Force (275)	
Federal	1,413
VA (1,410)	
Other Federal (3)	
Civilian	639
Telemedicine	33
Interdepartmental	243
Total	3,195

Trainees:

The department provided training to 22 civilian and 4 military pathologists and gastroenterology fellows, for a total of 520 training days.

EDUCATION

Conferences:

A daily divisional conference is held to review all gastrointestinal cases accessioned within the previous 24 hours. The conference serves as the major educational forum and is part of the quality assurance program. A gastrointestinal radiology-pathology conference is held monthly. The staff also attends the daily hepatic pathology review conference and the weekly hepatic clinical-pathologic conference. A monthly gastroenterology pathology correlation conference is held at WRAMC with AFIP staff and members of the WRAMC/NNMC gastroenterology program.

Courses:

Staff members participated in the following courses in 2008:

- 18th Annual Anatomic Pathology Review Course.
- 19th Annual Course on Surgical Pathology and Endoscopic Biopsies of the Gastrointestinal Tract, LH Sobin, Director. There were 95 participants each receiving up to 21 CME credits.
- 29th Annual Hepatopathology Course
- The Virtual Gastrointestinal Endoscopic Biopsy Course provides CME credit for 40 cases

Faculty Appointments:

1. Professor of Pathology, USUHS, Bethesda, Md, LH Sobin.
2. Adjunct Professor of Pathology, Georgetown University Medical School, Washington, DC, LH Sobin.
3. Assistant Professor of Pathology, USUHS, Bethesda, MD, JC Shaw.

Committees:

Intramural:

Chair, Committee on Graduate Medical Education – LH Sobin

Coordinator, WRAMC-AFIP Gastroenterology-Pathology Correlation Conference – N Dow

Quality Assurance Committee- J Shaw

Tissue Micro Array Project – J Shaw

Extramural:

LH Sobin:

Chair, TNM Prognostic Factors Project of the International Union Against Cancer

Member, WHO Expert Advisory Panel on Cancer

Presentations:

LH Sobin:

1. January 23, 2008: Washington, DC, WRAMC Pathology Department Conference (with video transmission to NNMC, Bethesda).)"Precancerous lesions of the GI tract and their imitators."

2. March 28, 2008: Arlington, VA, 18th AFIP Anatomic Pathology course. "Pitfalls in the diagnosis of intestinal polyps." and "Gastrointestinal unknowns."
3. March 31, April 1, 2, 3, 4, 2008: Washington, DC, Georgetown University Medical College. "Pathology of the gastrointestinal tract" (6 lectures to second year medical students).
4. September 21, 2008: Baltimore, MD, Gastroenterology Board Review. "Pathology rounds."
5. September 8-9, 2008: Silver Spring, MD, AFIP/ARP Course, Gastrointestinal surgical pathology and Endoscopic biopsies of the gastrointestinal tract. 1)"Precancerous lesions of the GI tract and their imitators," 2) "Intestinal polyps, pitfalls in diagnosis" and 3)"Gastrointestinal unknowns."
6. October 3, 2008: Orlando, FL, American College of Gastroenterology. Post-graduate course: Pathology and imaging in the evaluation of GI disease. "Large intestine."
7. November 19, 24, 2008: Bethesda, MD, Uniformed Services University of the Health Sciences. "Pathology of the gastrointestinal tract" (3 lectures to second year medical students).
8. December 4, 2008: Washington, DC, AFIP Grand Rounds Video Teleconference. "Intestinal polyps, pitfalls in diagnosis."

NS Dow:

1. March 27, 2008: Washington, DC, Walter Reed Army Medical Center, Monthly Gastroenterology-Pathology Conference, "Colorectal polyps."
2. June 5, 2008: Bethesda, MD, National Institutes of Health, Department of Pathology Resident Education Program, "Polyps of the gastrointestinal tract."
3. August 21, 2008: Washington, DC, Walter Reed Army Medical Center, Monthly Gastroenterology-Pathology Conference, "Esophageal pathology."
4. September 9, 2008: Silver Spring, MD, AFIP/ARP 17th Annual Review, Gastrointestinal Surgical Pathology and Endoscopic Biopsies of the Gastrointestinal Tract, "GI carcinoid tumors: overview."
5. October 16, 2008: Washington, DC, Walter Reed Army Medical Center, Monthly Gastroenterology-Pathology Correlation Conference, "Gastric pathology."

LN Howard:

1. June 11, 2008: Washington, DC, AFIP Staff Conference. "Heterotopic mesenteric ossification" (case presentation and review of literature).

KM Johnson:

1. June 11, 2008: Washington, DC AFIP Staff Conference. "The suspicious apple core."

AK Mehrotra:

1. January 2008: Washington, DC, Walter Reed Army Medical Center, "Non neoplastic diseases of the lower gastrointestinal tract."
2. March 2008: Washington, DC, Georgetown University Medical Center, Pathology Department. "Colorectal polyps and polyposis associated syndromes."
3. March 2008: Bethesda, MD, 18th Annual Anatomic Pathology Course. "Non neoplastic diseases of the lower gastrointestinal tract."
4. April 2008: Philadelphia, PA, Osler Pathology Board Examination Preparatory Course. "Gastrointestinal pathology for the Board Examinations."
5. May 2008: Tampa, FL, Osler Pathology Board Examination Preparatory Course. "Gastrointestinal pathology for the Board Examinations."
6. September 8-9, 2008: Silver Spring, MD, AFIP/ARP Course. "Gastrointestinal stromal tumors."
7. December 2008: Washington, DC, George Washington University Medical Center, Pathology Department. "Histology and pathology of stomach."

JC Shaw:

1. January 7-10, 2008: San Antonio, TX, Wilford Hall Medical Center, Series of lectures and glass slide sessions for the pathology residents and staff covering the luminal gastrointestinal tract and liver.
2. March 28, 2008: Arlington, VA, 18th AFIP Anatomic Pathology course. "Pathology of the upper gastrointestinal tract."
3. June 4, 2008: Washington, DC, AFIP, Regularly Scheduled Conference. "Gastrointestinal manifestations of neurofibromatosis-1."

RESEARCH

Journal Articles:

1. Greene FL, Sobin LH. The staging of cancer: a retrospective and prospective appraisal. *CA Cancer J Clin*. 2008;58:180-90.
2. Levy AD, Arnaiz J, Shaw JC, Sobin LH. Primary peritoneal tumors: imaging features with pathologic correlation (From the Archives of the AFIP). *Radiographics*. 2008;28:583-607.
3. Makhoulouf HR, Ahrens W, Agarwal B, Dow N, Marshalleck JJ, Lee EL, Dotto JE, Hui P, Sobin LH, Oliveira A, Miettinen. Synovial sarcoma of the stomach: a clinicopathologic, immunohistochemical, and molecular genetic study of 10 cases. *Am J Surg Pathol*. 2008;32:275-81.
4. Mehrotra AK, Levy A, Shaw JC, Su J, Sobin LH. Heterotopic mesenteric ossification. [Cases from the Armed Forces Institute of Pathology.] *Visible Human J Endoscopy (VHJOE)*. 2008; 7: issue 2.
5. Mehrotra AK, Levy A, Shaw JC, Sobin LH. Appendiceal intussusception and inverted appendix [Cases from the Armed Forces Institute of Pathology.] *Visible Human J Endoscopy (VHJOE)*. 2008; 7: Issue 3.
6. Miettinen M, Kraszczyńska E, Sobin LH, Lasota J. A nonrandom association between gastrointestinal stromal tumors and myeloid leukemia. *Cancer*. 2008;112:645-49.
7. Miettinen M, Sobin LH, Lasota J. True smooth muscle tumors of the small intestine: a clinico-pathologic, immunohistochemical, and molecular genetic study of 26 cases. *Am J Surg Pathol*. 2008 Oct 28. [Epub ahead of print] PMID: 18971781
8. Shaw JC, Levy A, Mehrotra A, Sheldon L, Sobin LH. Gastrointestinal stromal tumors, endocrine tumors, and neurofibroma involving the gastrointestinal tract of a patient with neurofibromatosis-1. [Cases from the Armed Forces Institute of Pathology.] *Visible Human J Endoscopy (VHJOE)*. 2008; 7 Issue 1.
9. Tang LH, Shia JR, Soslow R, Dhall D, Wong WD, Picon A, Paty P, Weiser M, Guillem J, Temple L, Sobin LH, Klimstra DS. Pathological classification and clinical behavior of a spectrum of goblet cell carcinoid tumors of the appendix. *Am J Surg Pathol*. 2008; 32(10):1429-43

Abstracts:

1. Groome PA, Gospodarowicz MK, Sobin LH, Greene FL, Keller S. The continuous review process of the TNM classification. UICC Cancer Congress, 2008 abstr 1465.
2. Miettinen M, Sobin LH, Lasota J. True smooth muscle tumors of the jejunum and ileum – a clinicopathologic study of 32 cases. *Modern Pathol*. 2008;21:129A (abstract 586).
3. Wang G, Auerbach A, Wei M, Dow N, Barry TS, Hodge L, Schaffer D, Sobin LH, Aguilera NS. t(11;18) (q21;q21) in extranodal marginal zone b-cell lymphoma in stomach: a molecular, immunohistochemical and histological study of 48 cases. *Modern Pathol*. 2008;21:139A (abstract 632).

Projects:

1. Gastrointestinal stromal tumors (GISTs), clinicopathologic studies.
2. Neurogenic tumors of the GI tract, clinicopathologic study.
3. Gastrointestinal stromal tumors, radiologic-pathologic correlations.
4. Benign fibrous tumors and tumor-like lesions of the mesentery: radiologic pathologic correlations.
5. Primary peritoneal tumors: imaging features with pathologic correlation.
6. Eosinophilic esophagitis.
7. Differentiating primary gastric and colorectal signet ring cell carcinoma by mucin protein expression.
8. Carcinoid tumors: evaluation of pathogenesis, behavior, and prognosis via a tissue microarray study.
9. Colon carcinoma: Clinicopathologic evaluation with immunohistochemical and molecular markers by tissue microarray study.

Collaborators:

Military/Federal:

1. National Cancer Institute: Surveillance, Epidemiology, End Results (SEER) Program: International Classification of Diseases for Oncology and TNM/Prognostic Factors Classification and Cancer Staging.

2. CDC: TNM/Prognostic Factors Classification and Cancer Staging.
3. Naval Medical Center, San Diego: Differentiating primary gastric and colorectal signet ring cell carcinoma by mucin protein expression.
4. WRAMC, Division of Gastroenterology: Gastroenterology-pathology correlation conference (monthly).
5. WRAMC/NNMC, Eosinophilic esophagitis.

International:

1. WHO: International Classification of Diseases for Oncology (ICD-O).
2. International Union against Cancer (UICC): TNM/Prognostic Factors Classification and Cancer Staging.

PROFESSIONAL ACTIVITIES

Official Trips (funding agency in parentheses):

1. April 2008: Prognostic Factors in Cancer meeting, International Union against Cancer, London, UK, LH Sobin, (UICC).
2. May 2008: TNM Prognostic Factors Project meeting, International Union Against Cancer (UICC), Geneva, Switzerland, LH Sobin (UICC).
3. August 2008: Staging of gastric cancer meeting, American Joint Committee on Cancer, Buffalo, NY, LH Sobin (AJCC).
4. October 2008: American College of Gastroenterology, Pathology and imaging in the Evaluation of GI Disease Course, Orlando FL, LH Sobin (ACG).
5. November 2008: International Association for the Study of Lung Cancer (IASLC) Staging meeting, Chicago IL, LH Sobin (IASLC).

Editorships:

LH Sobin:

1. Associate Editor, AFIP *Atlas of Tumor Pathology*, 4th Series
2. Associate Editor, AFIP/ARP *Atlas of Nontumor Pathology*
3. Co-editor, TNM *Classification of Malignant Diseases*, 7th edition



Teri J. Franks, MD
Chair
Date of Appointment – 8 March 2005

DEPARTMENT OF PULMONARY & MEDIASTINAL PATHOLOGY

STAFF

Medical

Teri J. Franks, MD
Konstantin Shilo, MD
Dennis L. Hayden, COL, MC, USA
Negar Rassaei, MD
Allen Burke, MD (Visiting Scientist, University of Maryland)
Thomas Stocker, COL, MC, USA (Visiting Federal Scientist, USUHS)

Scientific

Vasuki Anandan, MD, AFIP Fellow in Pulmonary & Mediastinal Pathology

Administrative:

Tammie Winters, Administrative Officer
Kim Jones, Administrative Assistant

IMPACT

The Department of Pulmonary and Mediastinal Pathology is one of the world's foremost authorities on thoracic pathology. We provided key leadership in the 2002 ATS/ERS Classification of Idiopathic Interstitial Pneumonias, and the 2004 World Health Organization Classification of Tumours, Pathology and Genetics: Tumours of the Lung, Pleura, Thymus and Heart published by the International Association for Research on Cancer in Lyon, France. Our department played a key role in the diagnosis of acute eosinophilic pneumonia cases that were part of a cluster of cases of severe respiratory illness observed in active duty military personnel in the Southwest Asia Theater of War. Dr. Franks developed the AFIP Hot Topic on Acute Eosinophilic Pneumonia that was distributed on the World Wide Web and served to provide up-to-date information for diagnosis to military physicians in the Southwest Asia Theater of War. We have continued to monitor lung pathology in military personnel and their dependents trying to obtain support from the Army Surgeon General and Department of Health Affairs for this work.

CONSULTATION

Approximately 60% of our consultation cases are tumors and about 40% are non-neoplastic thoracic disorders. We provide state of the art consultative work for pathologists worldwide in pulmonary, pleural, and mediastinal pathology, and work very closely with a world-class thoracic radiologist and pulmonologist to provide complete clinical-pathologic and radiologic consultation opinions. Our work is highly military relevant as our international stature achieved in the civilian realm is brought to bear on all of our military consultations.

Number of changes in contributor diagnoses: Our department made a minor change in diagnosis in 615 cases, a major change in diagnosis in 134 cases and no change in the contributor diagnosis in 363 cases. We received 282 cases with no contributor diagnosis.

<i>Cases</i>	<i>Completed</i>
Military	242
Army (138)	
Navy (63)	
Air Force (41)	
Federal	667
VA (666)	
USPHS	1
Civilian	496
Interdepartmental	188
Radiology Class Cases	159
Total	1,752

EDUCATION

Presentations and Seminars

11 total

Trainees

Our department is well recognized as an international center for training in pulmonary pathology. Our resources provide a unique opportunity for fellowship training, which is a major priority of the department. During 2008, we had 3 physicians rotate in the department from Walter Reed Army Medical Center, Washington, DC; 2 from Howard University, Washington, DC; 2 from University of Maryland; 1 from National Institute of Health, Bethesda, MD; 1 from Lackland AFB, San Antonio, TX; 1 from John Hopkins University, Baltimore, MD; 1 from University Services Health Education Consortium, San Antonio, TX; 1 from George Washington University, Washington, DC; and 1 from Iraq.

Educational Aids

Our department has one of the most extensive slide teaching collections in the world for pulmonary and mediastinal pathology cases. Over 5,500 cases are accessioned into this study set. Departmental fellows, staff, and visiting physicians are able to utilize this invaluable resource for education, teaching, and publications.

Presentations

Lectures:

TJ Franks

1. January, 30, 2008: "The Radiologic-pathologic continuum of visualization: discordant cases," Medical Staff Conference, Armed Forces Institute of Pathology.
2. March 24-29, 2008: "Mediastinal pathology: a radiologic based compartmental approach," 18th Annual Anatomic Review Course, Armed Forces Institute of Pathology, Bethesda, Maryland.
3. March 24-29, 2008: "Idiopathic interstitial pneumonia: the ATS/ERS Classification," 18th Annual Anatomic Review Course, Armed Forces Institute of Pathology, Bethesda, Maryland.
4. April 9, 2008: "Lung tumors: the WHO Classification," Visiting Professor, Walter Reed Army Medical Center and National Naval Medical Center Departments of Pathology, WRAMC, Washington, DC.
5. April 16, 2008: "Mediastinal pathology: a radiologic based compartmental approach," Visiting Professor, Walter Reed Army Medical Center and National Naval Medical Center Departments of Pathology, WRAMC, Washington, DC.
6. April 23, 2008: "Idiopathic interstitial pneumonia: the ATS/ERS Classification," Visiting Professor, Walter Reed Army Medical Center and National Naval Medical Center Departments of Pathology, WRAMC, Washington, DC.
7. April 3, 2008: "Idiopathic interstitial pneumonia: the ATS/ERS Classification," Grand Rounds Video Teleconference, Armed Forces Institute of Pathology.
8. May 8, 2008: "Primary cysts and tumors of the thymus," Visiting Professor, National Institutes of Health, Laboratory of Pathology, Bethesda, MD.
9. June 8, 2008: "The radiologic-pathologic continuum of visualization: collaborative diagnosis and learning," Visiting Professor, Grand Rounds, Department of Radiology,

University of Maryland School of Medicine, Baltimore, MD.

K Shilo

10. March 29, 2008: "Diffuse malignant mesothelioma," 18th Annual AFIP Anatomic Pathology Course, Bethesda, MD.

DL Hayden

11. April 29, 2008: "Classification of lung tumors," 18th Annual Anatomic Review Course, Armed Forces Institute of Pathology, Bethesda, MD.

Web-based Material

TJ Franks

1. Editor and Co-founder, Hot Topics Series (Web based modules on emerging diseases), Armed Forces Institute of Pathology, 5/2003-present. <http://www.afip.org/hot-topics.html>
2. Co-founder and Consultant for development, AskAFIP Online Database, Armed Forces Institute of Pathology, 9/2003-present. <https://www.askafip.org>

Monthly Conference

DL Hayden

Pulmonary pathology monthly conference for Pulmonary Medicine Fellows, Walter Reed Army Medical Center, 2001-2008.

RESEARCH

Publications-Journal Articles

TJ Franks

1. Franks TJ, Colby TV, Travis WD, Tudor RM, Reynolds HY, Brody AR, Cardoso WV, Crystal RG, Drake CJ, Engelhardt J, Frid M, Herzog E, Mason R, Phan SH, Randell SH, Rose MC, Stevens T, Serge J, Sunday ME, Voynow JA, Weinstein BM, Whitsett J, Williams MC. Resident cellular components of the human lung: current knowledge and goals for research on cell phenotyping and function. *Proc Am Thorac Soc*. 2008 Sep;5(7):763-6.
2. Franks TJ, Galvin JR. Lung tumors with neuroendocrine morphology: essential radiological and pathological features. *Arch Pathol Lab Med*. 2008 Jul;132(7):1055-61.
3. Frazer AA, Franks TJ, Cook E, Mohammed TL, Pugatch RD, Galvin JR. From the archives of the AFIP: pulmonary alveolar proteinosis. *Radiographics*. 2008 May-Jun;28(3):883-99.
4. Ozbudak IH, Shilo K, Hale S, Aguilera NS, Galvin JR, Franks TJ. Alveolar airspace and pulmonary artery involvement by extramedullary hematopoiesis: a rare manifestation of myelofibrosis, case report and review of the literature. *Arch Pathol Lab Med*. 2008 Jan;132(1):99-103.
5. Tavora F, Burke A, Li L, Franks TJ, Virmani R. Postmortem confirmation of Lyme carditis with polymerase chain reaction. *Cardiovasc Pathol*. 2008 Mar-Apr;17(2):103-7.
6. Tavora F, Miettinen M, Fanburg-Smith J, Franks TJ, Burke A. Pulmonary artery sarcoma: a histologic and follow-up study with emphasis on a subset of low-grade myofibroblastic sarcomas with a good long-term follow-up. *Am J Surg Pathol*. 2008 Sep 5. [Epub ahead of print]
7. Travis WD, Hunninghake G, King Jr TE, Lynch DA, Colby TV, Galvin JR, Brown KK, Chung MP, Cordier JF, Dubois RM, Flaherty KR, Franks TJ, Hansell DM, Hartman TE, Kazerooni EA, Kim DS, Kitaichi M, Koyama T, Martinez FJ, Nagai S. Idiopathic nonspecific interstitial pneumonia: report of an ATS project. *Am J Respir Crit Care Med*. 2008 Apr [Epub ahead of print]

K Shilo

8. Ozbudak IH, Shilo K, Hale SJ, Aguilera NS, Galvin JR and Franks TJ. Pulmonary alveolar space and arterial involvement by extramedullary hematopoiesis: a rare manifestation of myelofibrosis, case report and review of the literature. *Arch Pathol Lab Med*. 2008 Jan;132(1):99-103.
9. Gill RK, Vazquez MF, Kramer A, Hames M, Zhang L, Heselmeyer-Haddad K, Ried T, Shilo K, Henschke C, Yankelevitz D, Jen J. The use of genetic markers to identify lung cancer in fine needle aspiration samples. *Clin Cancer Res*. 2008 Nov 15;14(22):7481-7.

Publications-Abstracts:

TJ Franks

1. Burke AP, Cresswell N, Kutys R, Franks TJ, Li L, Virmani R. Pathologic features of hypertrophic cardiomyopathy in exertional and non-exertional sudden deaths. *Mod Pathol*. 2008;21(Suppl 1):62A.
2. Burke AP, Tavora F, Ozbudak IH, Franks TJ, Miettinen M. Pediatric Cardiac Sarcomas: A series of 16 new cases and review of the literature. *Virchows Archiv*. 2008;451(2):489.
3. Cresswell N, Kutys R, Virmani R, Franks TJ, Li L, Burke AP. Cardiac sarcoidosis and sudden death. *Mod Pathol*. 2008;21(Suppl 1):63A.
4. Ozbudak IH, Shilo K, Galvin JR, Franks TJ. Pulmonary angiomyolipoma: clinicopathological description of 2 new cases and 10 previously reported cases. *Virchows Archiv*. 2008;451(2):423.
5. Ozbudak IH, Shilo K, Miettinen M, Franks TJ. Extramedullary hematopoiesis in pulmonary spindle cell tumors: rare and unusual association. *Virchows Archiv*. 2008;451(2):423.
6. Tavora F, Ozbudak IH, Shilo K, Przybocki JM, Wang G, Travis WD, Franks TJ. Inflammatory myofibroblastic tumors of the lung are negative for HHV-8. *Virchows Archiv*. 2008;451(2):423.
7. Ozbudak IH, Tavora F, Rassaei N, Shilo K, Chu W-S, Fukuoka J, Jen J, Travis WT, Franks TJ. Glucose transporter-1 expression in pulmonary neuroendocrine carcinoma. *Virchows Archiv*. 2008;451(2):524.
8. Rassaei N, Shilo K, Lewin-Smith M, Kalasinsky VF, Klassen-Fischer MK, Franks TJ. A case of pulmonary zygomycosis associated with calcium oxalate deposition within bronchial cartilage. *Mod Pathol*. 2008;21(Suppl 1):9A.
9. Shakoori A, Fukuoka J, Dracheva T, Shih JH, Shilo K, Nwosu U, Zhang H, Gill R, Jeon H, Clifford R, Franks TJ, Hewitt S, Travis WD, Jen J. Computer-aided scoring and analysis (CASA) of lung tissue microarray identifies that c-Myc and p16 expression levels jointly predict patient survival in non-small cell lung cancer. [abstract]. In: Proceedings of the 99th Annual Meeting of the American Association for Cancer Research; 2008 Apr 12-16; San Diego, CA. Philadelphia (PA): AACR; 2008. Abstract nr {#4137}.

K Shilo

10. Rassaei N, Shilo K, Lewin-Smith M, Kalasinsky VF, Klassen-Fischer MK, Franks TJ. A case of pulmonary zygomycosis associated with calcium oxalate deposition within bronchial cartilage. *Mod Pathol*. 21(Jan): 9A, 2008.

N Rassaei

11. Rassaei N, Shilo K, Lewin-Smith M, Kalasinsky VF, Klassen-Fischer MK, Franks TJ. A case of zygomycosis associated with calcium oxalate deposition. USCAP 2008 March; Annual Meeting.

Projects:

In 2008 the department maintained 7 research protocols, as listed below:

1. Correlation of Pulmonary w/Radiological Studies
2. Localized Fibrous Tumor of the Pleura
3. Lung Disease in Military, Veterans & Civilians
4. Neuroendocrine Tumors of the Lung
5. Analysis of Lung Cancer Using Tissue Microarray
6. Histologic Analysis of Pleuropulmonary Blastoma
7. Immunohistochemical Staining for P53, PDGF, and P16 Antibodies in Malignant Mesothelioma and Atypical Mesothelial Proliferations

Collaborators in research projects:

Military/Federal:

1. National Institutes of Health/National Heart Lung and Blood Institute, Lymphoangioleiomyomatosis and Interstitial Lung Disease
2. National Institutes of Health/Office of Rare Diseases, Hermansky-Pudlock Syndrome
3. National Institutes of Health/National Cancer Institute, Molecular Biology of Lung Cancer

Civilian:

1. Brompton Hospital, London, England, Neuroendocrine Lung Tumors

2. University of Grenoble, France, Molecular Biology of Lung Cancer, Neuroendocrine Lung Tumors
3. Memorial Sloan Kettering Cancer Center, New York, NY, Neuroendocrine Tumors
4. Memorial Sloan Kettering Cancer Center, New York, NY, Adenocarcinoma
5. Toyama University Hospital, Toyama, Japan, Neuroendocrine and Non-Small Cell Carcinoma
6. University of Wurzburg, Wurzburg, Germany, Thymic Neuroendocrine Tumors
7. Mayo Clinic, Molecular Biology of Lung Cancer, Neuroendocrine Lung Tumors, Interstitial Lung Disease

PROFESSIONAL ACTIVITIES

Official Trips

TJ Franks

1. May 8, 2008: Visiting Professor, “Primary Cysts and Tumors of the Thymus,” National Institutes of Health, Laboratory of Pathology, Bethesda, MD.
2. June 8, 2008: Visiting Professor, “The Radiologic-Pathologic Continuum of Visualization: Collaborative Diagnosis and Learning,” Grand Rounds, Department of Radiology, University of Maryland School of Medicine, Baltimore, MD.
3. December 3 & 4, 2008: Editorial Board during RS&A.

Editorial Boards

TJ Franks

1. *Archives of Pathology and Laboratory Medicine*, abstract review board, 2006 to present
2. *Journal of Thoracic Imaging*, editorial board, 2006 to present
3. *Archives of Pathology and Laboratory Medicine*, section editor, 2006 to present

Manuscript Reviewer

1. *Pathology*, 2008
2. *British Journal of Cancer*, 2008

Appointments Inside the AFIP

TJ Franks

1. Chairman, Department of Pulmonary and Mediastinal Pathology, Armed Forces Institute of Pathology, Washington, DC, 3/7/2005-present
2. Director, American Registry of Pathology Callender-Binford Pulmonary Pathology Fellowship Training Program, Armed Forces Institute of Pathology, Washington, DC, 3/2005-present
3. Chairman, Oversight committee for continuing medical education, Armed Forces Institute of Pathology, 7/2007-present

K Shilo

4. Associate Chairman, Department of Pulmonary and Mediastinal Pathology, Armed Forces Institute of Pathology, Washington, DC, 06/2005 -present

Faculty and Clinical Staff Appointments Outside the AFIP

TJ Franks

1. Adjunct Assistant Professor of Medicine (Pulmonary and Critical Care Medicine Division), University of Maryland School of Medicine, Baltimore, Maryland, 7/15/2005 to present
2. Consultant, Pulmonary Pathology, Pulmonary and Critical Care Medicine Branch, National Heart, Lung, and Blood Institute, National Institutes of Health, Bethesda, MD, 1/2006 to present

K Shilo

3. Consultant, Laboratory of Population Genetics, National Cancer Institute, Bethesda, Maryland, 01/2005-present

Administrative Service-Intramural
Committees

TJ Franks

1. Advisory committee to the Director on Distance Learning Activity, Armed Forces Institute of Pathology, 6/2003-present
2. Information management support council, Armed Forces Institute of Pathology, 10/2003 to present
3. Task Force 8 Project Team – Database development for Distance Learning and Education, Armed Forces Institute of Pathology, 3/2004-present
4. Graduate Medical Education Committee, 2005 to present
5. Chairman, Oversight committee for continuing medical education, Armed Forces Institute of Pathology, 7/2007-present

K Shilo

6. Research Committee, Armed Forces Institute of Pathology, 2005 to present

Administrative Service-Extramural

TJ Franks

1. National Heart, Lung, and Blood Institute/National Institutes of Health, Protocol Review Committee for the Idiopathic Pulmonary Fibrosis Clinical Network, 2005 to present
2. *Archives of Pathology and Laboratory Medicine*, abstract review board, 2006 to present
3. *Journal of Thoracic Imaging*, editorial board, 2006 to present
4. *Archives of Pathology and Laboratory Medicine*, section editor, 2006 to present
5. Pulmonary Pathology Society/College of American Pathologists, Asbestos Guidelines Committee, 2007 to present
6. Lymphangiomatosis and Gorham's Disease Alliance, Medical Advisory Council, 2006 to present
7. Pulmonary Pathology Society, Program Committee for the 2009 Annual Meeting, 2008-2009

DL Hayden

8. College of American Pathologists, Laboratory Inspector, 1988-present

Course Directorship

DL Hayden

1. Course Co-Director, Annual Anatomic Pathology Review Course, Armed Forces Institute of Pathology, 2005 to present.



William D. Craig CDR, MC, USN
Chairman
Date of Appointment—11 December 2006

DEPARTMENT OF RADIOLOGIC PATHOLOGY

MISSION

To provide preeminent educational programs, research, and consultation services to the Armed Forces Institute of Pathology, the Department of Defense, and the global medical community using a unique archive of radiologic and pathologic material.

ORGANIZATION

The department is organized into seven sections and the Office of the Chairman.

- Gastrointestinal Radiology
- Genitourinary Radiology
- Musculoskeletal Radiology
- Neuroradiology
- Pediatric Radiology
- Pulmonary and Mediastinal Radiology
- Forensic Radiology

STAFF

Medical:

- William D. Craig, CDR, MC, USN Chairman and Chief, Genitourinary Radiology
- Ellen M. Chung, COL, MC, USA, Chief, Pediatric Radiology
- Aletta A. Frazier, MD, Physician Medical Illustrator, ARP
- Jeffrey R. Galvin, MD, Chief, Pulmonary and Mediastinal Radiology, ARP
- Leonard M. Glassman, MD, FACR, Chief, Mammography, MOU-Washington Radiology Associates, PC
- Howard T. Harcke, COL, MC, USA, Chief, Forensic Radiology
- Alice Boyd Smith, Lt Col, MC, USAF Chief, Neuroradiology
- Angela D. Levy, COL, MC, USA, Chief, Gastrointestinal Radiology
- Mark D. Murphey, MD, Chief, Musculoskeletal Radiology, ARP
- (D) Naomi P. Alazraki, MD Distinguished Scientist, ARP
- (A) John Rees, MD, Associate Radiologist, American Red Cross
- (D) John Rhee, MD, Junior Scientist, Musculoskeletal Radiology, ARP
- (A) Chad Ruble, MD, Junior Scientist, Musculoskeletal Radiology, ARP

Administrative:

- (D) Monte Grace, HM2(FMF), USN, NCOIC, Radiologic Pathology Correlation Course
- Donald E. Hatley, Administrator, ARP
- Jessica Holquin, Digitization Supervisor, ARP
- Danqing Liu, Administrative Assistant, ARP
- (A) David M. Parker, YN2(SW), USN, NCOIC, Radiologic Pathology Correlation Course
- Kathy M. Rahimly, Case Manager, ARP, Part-time
- Katherine E. Short, Digitization Specialist, ARP
- Anika Torruella, Editorial Assistant, ARP
- Alethia B. West, Case Management, Supervisor, ARP

Carl D. Williams, Radiologic Pathology Correlation Coordinator and Categorical Course Coordinator, ARP
Ben Yohannes, Systems Manager, ARP

IMPACT

The entire staff of the Department of Radiologic Pathology made significant contributions to the education of military and civilian radiology residents and radiologists' worldwide utilizing radiologic-pathologic correlation and to a wide range of military activities affiliated with the AFIP. The department's world-renowned educational program, the radiologic-pathologic correlation course, was held five times in 2008 with 1,258 radiology residents in attendance. Diagnostic radiology residents from all 190 United States residency programs participated in this didactic educational program. Without substantial federal assistance, this financially independent course is the sole source for all of the department's non-military salaries, equipment, and expenditures and generated revenues of nearly \$3.3 million. The course also provided over 1,242 new cases to the over 94,000 cases held in the department's archives of radiologic pathologic correlation. This valuable and unique repository is the basis for all of the department's research conducted by the department's faculty, leading to 52 peer-reviewed articles and more than 300 lectures presented in numerous radiological science symposia. The 7th edition of "Radiologic Pathology" the correlation course's soft cover syllabus for the RADPATH correlation course was released for public sale in July 2008 and represented a major expansion of this text with captioned figures, references, and an index. This is the second in the series of books to include a complete electronic file download of the book. This book has been enthusiastically received since inception and soft cover sales continue with vigor. The mission of the department is enhanced through the RADPATH Luminary, a quarterly electronic newsletter that is released to more than 18,000 email addresses or radiologists and physicians worldwide. The online educational portal Radiologic Pathology at Ask AFIP combines the case material, the 2005-2008 Radiologic Pathology syllabus, and scientific articles by the departmental staff into an interactive platform that allows efficient and timely review of a wide variety of topics as well as self-assessment for the user and is currently subscribed by 4,719 members.

DIAGNOSTIC CONSULTATION

The department conducts only intramural radiologic consultation. Provided 194 man-days of onsite radiologic consultation for forensic autopsies at the Charles C Carson Port Mortuary, Dover Air Force Base, Dover, DE in direct support of the Global War on Terrorism, Operation Iraqi Freedom and Operation Enduring Freedom. There were 326 real-time consultations. An additional 427 case review consults were by request or in conjunction with research studies.

EDUCATION

Courses:

1. AFIP Radiologic Pathology Courses:

Radiologic Pathology correlation Course: Five courses were conducted in 2008. These were attended by 1,258 radiology residents (43 federal; 1,215 non-federal). Approximately 145 man-days of training were provided. The course remains subscribed nearly 2 years in advance and is attended by virtually all civilian and military residents from every U.S. diagnostic radiology residency program. Nearly Two hundred residents from other countries also attend. The Radiologic Pathology Course is also offered to radiologists who have completed their training. A complete listing of lectures provided by the department staff is located in "PRESENTATIONS".

2. AFIP Courses in Collaboration with Foreign Radiological Societies: The Department of Radiologic Pathology provided the curriculum and faculty for four international short courses held in Spain, Austria, Portugal, and the Netherlands and sponsored by the radiological societies in these locales, in association with the AFIP and the ARP. Members of the department were also featured in specific sections within the course curricula of several major international radiological symposia in Brazil, Japan, France, Germany, Argentina and the Netherlands. These courses ensured dissemination of the principles of radiologic-pathologic correlation to radiologists and physicians that do not traditionally participate in the department's Radiologic Pathology Courses. The courses were extremely well received and it is expected that these will continue on an annual basis. For specific listing of lectures, please see "PRESENTATIONS."

3. Radiologic Pathology Participation in Courses Held By Other AFIP Departments: The staff

of the Department of Radiologic Pathology provided lectures in courses hosted by Chest Pathology.

Trainees:

Junior Scientists begin a one-year post-residency year in graduate medical education in selected subspecialty areas of radiology. The department provided this training to one radiologist in the musculoskeletal radiology section under the direction of the section chief, Dr. Mark Murphey, in 2008. John H. Rhee, MD completed his Junior Scientist year in June 2008 and Chad Ruble, MD began his junior scientist year in July 2008. Dr. Candelaria Gonzalez, a fourth-year radiology resident sponsored by Fundación XV Congreso Internacional de Radiología and Sociedad Española de Radiología (SERAM) in Spain, collaborated with Dr. Ellen M. Chung, section chief of Pediatric Radiology, on selected projects.

Faculty Appointments:

Craig WD

1. Department of Radiology, National Naval Medical Center
2. Associate Professor, Radiology and Nuclear Medicine, Uniformed Services University of the Health Sciences

Chung EM

1. Department of Radiology, Walter Reed Army Medical Center
2. Associate Professor, Radiology and Nuclear Medicine, Uniformed Services University of the Health Sciences
3. Visiting Professor Georgetown University Department of Radiology

Frazier AA

1. Clinical Associate Professor, Department of Radiology, University of Maryland Medical System
2. Assistant Professor, Department of Diagnostic Radiology, University of Maryland Medical Center

Galvin JR

1. Clinical Professor, Department of Radiology, University of Maryland Medical System
2. Professor Departments of Radiology and Internal Medicine, University of Maryland Medical System

Glassman LM

1. Visiting Professor, Department of Radiology, Boston University School of Medicine
2. Clinical Professor, Department of Radiology, George Washington University School of Medicine
3. Clinical Professor, Department of Radiology, Georgetown University School of Medicine

Harcke HT

1. Professor of Radiology and Pediatrics, Jefferson Medical College, Philadelphia, PA
2. Adjunct Professor of Radiology and Nuclear Medicine, Uniformed Services University of the Health Sciences
3. Radiologist Emeritus and Director of Imaging Research, Department of Medical Imaging, Alfred I DuPont Hospital for Children, Wilmington, DE

Levy AD

1. Department of Radiology, Walter Reed Army Medical Center
2. Chief, Abdominal Imaging, Department of Radiology, Uniformed Services University of the Health Sciences, Bethesda, MD

Murphey MD

1. Professor, Radiology and Nuclear Medicine, Uniformed Services University of the Health Sciences
2. Department of Radiology, Walter Reed Army Medical Center

Smith AB

1. Associate Professor, Radiology and Nuclear Medicine, Uniformed Services University of the Health Sciences

Honors:**Harcke HT**

1. Best Doctors in America (2008-2009)
2. America's Top Radiologists (2008)

Levy AD

The Order of Medical Military Merit

Presentations:

The staff of the Department of Radiologic Pathology provided more than 231 presentations during the calendar year, with 159 occurring within the department's radiologic pathologic correlation course. The Staff and extended faculty of the Department of Radiologic Pathology lectured at 106 radiologic pathology courses held outside of the AFIP. Faculty members participated as visiting professors for 11 different academic institutions and delivered 63 presentations in other venues.

AFIP Radiologic Pathology Course Lectures:

Department of Radiologic Pathology staff in the Radiologic Pathology Correlation Course held five times in 2008 provided the following lectures.

CHEST RADIOLOGY**Jeffrey R. Galvin, MD**

1. An Approach to Diffuse Lung Disease, Sarcoidosis
2. The Idiopathic Interstitial Pneumonias
3. Airways Disease: The Movement from Anatomic to Physiologic Assessment
4. Inhalational Lung Disease (Asbestosis and Silicosis)
5. Pulmonary Lymphoid Disorders
6. Angiitis and Granulomatosis
7. The Pulmonary Complications of Bone Marrow Transplantation
8. Tuberculosis
9. Bronchogenic Carcinoma: Radiologic-Pathologic Correlation
10. Chest Seminar I
11. Chest Seminar II

Aletta Frazier

12. Pulmonary Hypertension
13. Pulmonary Metastases

Melissa L. Rosado de Christenson, MD FACR

14. Differential Diagnosis of Mediastinal Masses
15. Seminar: Where is the lesion?

Rosita M. Shah, MD

16. Pneumonia: Usual and Unusual Organisms

Gerald F. Abbott, MD

17. Uncommon Malignant Tumors of the Lung
18. Benign Tumors of the Lung and Tumor-like Lesions
19. Pleural Disease I
20. Pleural Disease II and Chest Wall

Leonard M. Glassman, MD

21. Pathologic Basis of Breast Imaging
22. Breast Masses, Benign and Malignant
23. Breast Calcifications
24. Classic Breast Lesions
25. Uncommon Signs of Breast Cancer
26. Breast Disease in Men and Young Women

GASTROINTESTINAL RADIOLOGY

Angela D. Levy, COL, MC, USA

- 27. Benign Hepatic Neoplasms
- 28. Malignant Hepatic Neoplasms
- 29. Hepatic Infections
- 30. Chronic Liver Disease
- 31. Benign Biliary Disease
- 32. Biliary Neoplasms
- 33. Approach to the Imaging Differential Diagnosis of Gallbladder and Biliary Disease
- 34. Pancreatic Neoplasms
- 35. Gastrointestinal Malignancies
- 36. Tumors and Tumor-like Lesions of the Peritoneum and Mesentery
- 37. Idiopathic Inflammatory Bowel Disease
- 38. Gastrointestinal Seminar I: Abdominal Gas
- 39. Gastrointestinal Seminar II: The Pancreatic Duct
- 40. Gastrointestinal Seminar III: Meckel Diverticulum
- 41. Gastrointestinal Seminar IV: Beyond Appendicitis
- 42. Gastrointestinal Seminar V: Approach to the Imaging Differential Diagnosis of Inflammatory Diseases of the Colon

Faye C. Laing, MD

- 43. Cholelithiasis and Cholecystitis

Marc S. Levine, MD

- 44. Inflammatory Disease of the Esophagus
- 45. Tumors of the Esophagus
- 46. Peptic Ulcer Disease

Robert K. Zeman, MD

- 47. Strategies and Characterization of Liver Lesions

Francis J. Scholz, MD

- 48. Small Bowel Obstruction
- 49. Mesenteric Ischemia and Mimics
- 50. Malabsorption Syndromes
- 51. Polyposis Syndromes

Deborah Rubens, MD

- 52. The Spleen
- 53. Seminar: Portal Venous Doppler

GENITOURINARY RADIOLOGY

William D. Craig, CDR, MC, USN

- 54. Renal Neoplasms: Approach to Renal Masses
- 55. Retroperitoneum
- 56. Genitourinary Seminar 1: Renal Calcifications

Peter L. Choyke, MD

- 57. Cystic Diseases of the Kidney
- 58. Imaging of Prostate Cancer

Deborah J. Rubens, MD

- 59. Radiologic Evaluation of the Scrotum
- 60. Seminar: Portal Hypertension

Brent J. Wagner, MD

- 61. Imaging of Ovarian Masses
- 62. Adrenal Imaging in Adults

Jade Wong You Cheong, MD

- 63. Non-Neoplastic Disorders of the Ovary and Adnexae

- 64. Imaging of Solid Organ Transplants
- 65. Imaging of the Urinary Bladder and Urethra

Paula J. Woodward, MD

- 66. Imaging of Uterine Disorders
- 67. First Trimester Ultrasound
- 68. Fetal CNS Malformations
- 69. Fetal Body Anomalies
- 70. Genitourinary Seminar I: MSAFP
- 71. Genitourinary Seminar II: Renal Calcifications

David S. Hartman, MD

- 72. The Neglected Nephrogram
- 73. Problem Renal Masses

Faye C. Laing, MD

- 74. Ultrasound of the Cervix

MUSCULOSKELETAL RADIOLOGY

Mark D. Murphey, MD

- 75. Radiologic Assessment of Joint Replacement and Imaging of Bone Grafts
- 76. Musculoskeletal Manifestations of Chronic Renal Insufficiency
- 77. Fundamental Concepts of Musculoskeletal Neoplasms: Radiographs
- 78. Fundamental Concepts of Musculoskeletal Neoplasms: CT and MRI
- 79. Osteoid Lesions of Bone
- 80. Cartilaginous Lesions of Bone
- 81. Fibrous Lesions of the Musculoskeletal System
- 82. Alphabet Soup and Cystic Lesions of Bone
- 83. Juxtaarticular Masses
- 84. Musculoskeletal Angiomatous Lesions
- 85. Paget Disease
- 86. Musculoskeletal Infection
- 87. Musculoskeletal Seminar I
- 88. Musculoskeletal Seminar II
- 89. Musculoskeletal Seminar III
- 90. Musculoskeletal Seminar IV
- 91. Musculoskeletal Seminar V
- 92. Mark Anderson, MD
- 93. MRI of the Knee: Part 1
- 94. MRI of the Knee: Part 2
- 95. MRI of the Wrist
- 96. MRI of the Ankle and Foot

Mark J. Kransdorf, MD

- 97. Lesions of Unknown Histogenesis: Ewing Sarcoma and Langerhans Cell Histiocytosis
- 98. Common Lipomatous Soft Tissue Tumors
- 99. Metabolic Bone Disease
- 100. Osteonecrosis

Donald J. Flemming, CAPT, MC, USN

- 101. Approach to Arthritis (Inflammatory Arthropathies and Osteoarthritis)
- 102. MRI of the Rotator Cuff

Timothy Sanders, COL, MC, USAF

- 103. Imaging of Glenohumeral Instability

Charles S. Resnik, MD

- 104. Crystal Deposition Diseases and Neuropathic Osteoarthropathy

Mark Schweitser, MD/William Morrison, MD

- 105. MRI of the Elbow

Michael Mulligan, MD

106. Mets, Myeloma, Lymphoma

Thomas Lee Pope, MD

107. Imaging of Hematologic Disorders

108. Generalized Musculoskeletal Disorders

NEURORADIOLOGY

Alice Boyd Smith, Lt. Col. USAF MC

109. Imaging of Demyelinating Diseases

110. Neuroradiology Seminar I

111. Neuroradiology Seminar II

Patricia A. Hudgins, MD

112. Imaging of Intracranial Infections

113. Sella and Central Skull Base

114. Imaging of the Infrahyoid Neck

115. Paranasal Sinuses

Kelly K. Koeller, MD, FACR

116. Cerebral Intraventricular Neoplasms

117. Lymphoma and Uncommon Neuroepithelial Tumors

118. Imaging of the Temporal Bone: Anatomy and Congenital Lesions

119. Imaging of the Temporal Bone: Infectious and Neoplastic Lesions

120. Imaging of the Orbit: The Globe and Conal Lesions

121. Imaging of the Orbit: Intraconal and Extraconal Lesions

Howard A. Rowley, MD

122. Cerebral Ischemia

123. Lesions of the Basal Ganglia

Erin Simon Schwartz, MD

124. Congenital Brain Anomalies

125. Congenital Spinal Anomalies

James G. Smirniotopoulos, MD

126. The WHO 2000 Brain Tumor Classification

127. Non-Astrocytic Gliomas

128. Neoplasms of the Meninges

129. Pineal Region Masses

130. Other Non-Glial Tumors

131. The Phakomatoses

Wendy R. K. Smoker, MS, MD, FACR

132. Imaging of the Suprahyoid Neck I: Superficial, Parapharyngeal and Carotid Spaces

133. Imaging of the Suprahyoid Neck II: Masticator and Parotid Spaces

134. Imaging of the Suprahyoid Neck III: Pharyngeal Mucosal Space and Oral Cavity

135. Spine I: Degenerative Disease, Cystic Lesions, and Miscellaneous

136. Spine II: Infection and Neoplasms

137. Spine III: Vascular Lesions

PEDIATRIC RADIOLOGY

Ellen Chung, MD

138. Urinary Tract Infection in Children

139. Acute Gastrointestinal Disorders in Neonates

140. Acute Gastrointestinal Disorders in Infants and Young Children

141. Diseases Affecting the Pediatric Airway

142. Vascular Rings and Slings

143. Pediatric Cystic Renal Disease

144. Radiology of Child Abuse

145. Pediatric Seminar I: Pulmonary Infections and Their Sequelae

146. Pediatric Seminar II: Bone Dysplasias and Disorders

Marilyn Siegel, MD

147. Pediatric Renal Tumors

148. Pediatric Adrenal Tumors

149. Pediatric Pelvic Masses

150. Congenital Lung Malformations

151. Medical Lung Disease in Children

152. Imaging of Congenital Heart Disease-Beyond the Plain Film

Gael J. Lonergan, COL, MC, USAF

153. Congenital Heart Disease

Dorothy I Bulas, MD

154. Neonatal Brain: Neurosonography

William E. Shiels II, DO

155. Pediatric Liver Tumors

156. Pediatric Hip Sonography: Dynamic Pathology and Intervention

Department of Radiologic Pathology Courses:

1. January, 2008: Kobe, Japan, The Japan College of Radiology, Imaging acute right lower quadrant pain, M Siegel.
2. January, 2008: Kobe, Japan, The Japan College of Radiology, Neonatal bowel obstruction, M Siegel.
3. January, 2008: Kobe, Japan, The Japan College of Radiology, Vascular malformation, J Smirniotopoulos.
4. January, 2008: Kobe, Japan, The Japan College of Radiology, CNS Trauma, J Smirniotopoulos.
5. May 2008: Sao Paulo, Brazil, 38th Jornada Paulista de Radiologia, Hepatic Neoplasms, Biliary Neoplasms, Mesenteric and Peritoneal Tumors and Tumor-like Lesions, Benign Biliary Diseases, A. Levy.
6. May 2008: Sao Paulo, Brazil, 38th Jornada Paulista de Radiologia, GI Emergencies in Infants and Children, Part I & II, E Chung.
7. May 2008: Sao Paulo, Brazil, 38th Jornada Paulista de Radiologia, Pediatric Airway, E Chung.
8. May 2008: Sao Paulo, Brazil, 38th Jornada Paulista de Radiologia, Cystic Renal Disease, E Chung.
9. May 2008: Sao Paulo, Brazil, 38th Jornada Paulista de Radiologia, Radiology of Inflicted Trauma, E Chung.
10. May 2008: Sao Paulo, Brazil, 38th Jornada Paulista de Radiologia, Vascular Rings and Slings, E Chung.
11. June 2008: Madrid, Spain, Fundación Espanola de Radiología-Armed Forces Institute of Pathology, XIX Curso Internacional de Correlation Radio-Patológica, Radiologic Pathology and Breast Imaging, L Glassman.
12. June 2008: Madrid, Spain, Fundación Espanola de Radiología-Armed Forces Institute of Pathology, XIX Curso Internacional de Correlation Radio-Patológica, Evaluation of Breast Masses, L Glassman.
13. June 2008: Madrid, Spain, Fundación Espanola de Radiología-Armed Forces Institute of Pathology, XIX Curso Internacional de Correlation Radio-Patológica, Evaluation of Breast Calcifications, L Glassman.
14. June 2008: Madrid, Spain, Fundación Espanola de Radiología-Armed Forces Institute of Pathology, XIX Curso Internacional de Correlation Radio-Patológica, Uncommon Signs of Breast Cancer, L Glassman.
15. June 2008: Madrid, Spain, Fundación Espanola de Radiología-Armed Forces Institute of Pathology, XIX Curso Internacional de Correlation Radio-Patológica, Interpretation of Breast MRI, L Glassman.
16. June 2008: Madrid, Spain, Fundación Espanola de Radiología-Armed Forces Institute of Pathology, XIX Curso Internacional de Correlation Radio-Patológica, The Male Breast, L Glassman.
17. June 2008: Porto, Portugal, Sociedade Portuguesa de Radiologia e Medicina Nuclear (SPRMN)-Armed Forces Institute of Pathology XI Curso de Correlação Anátomo

- Radiológica, Radiologic Pathology and Breast Imaging, L Glassman.
18. June 2008: Porto, Portugal, Sociedade Portuguesa de Radiologia e Medicina Nuclear (SPRMN)-Armed Forces Institute of Pathology XI Curso de Correlação Anátomo Radiológica, Evaluation of Breast Masses, L Glassman.
 19. June 2008: Porto, Portugal, Sociedade Portuguesa de Radiologia e Medicina Nuclear (SPRMN)-Armed Forces Institute of Pathology XI Curso de Correlação Anátomo Radiológica, Evaluation of Breast Calcifications, L Glassman.
 20. June 2008: Porto, Portugal, Sociedade Portuguesa de Radiologia e Medicina Nuclear (SPRMN)-Armed Forces Institute of Pathology XI Curso de Correlação Anátomo Radiológica, Interpretation of Breast MRI, L Glassman.
 21. June 2008: Porto, Portugal, Sociedade Portuguesa de Radiologia e Medicina Nuclear (SPRMN)-Armed Forces Institute of Pathology XI Curso de Correlação Anátomo Radiológica, The Male Breast, L Glassman.
 22. June 2008: Austria, Österreichische Röntgengesellschaft-Armed Forces Institute of Pathology, 15th Radiologisches Fortbildungsseminar, Radiologic Pathology and Breast Imaging, L Glassman.
 23. June 2008: Austria, Österreichische Röntgengesellschaft-Armed Forces Institute of Pathology, 15th Radiologisches Fortbildungsseminar, The Male Breast, L Glassman.
 24. June 2008: Austria, Österreichische Röntgengesellschaft-Armed Forces Institute of Pathology, 15th Radiologisches Fortbildungsseminar, Uncommon Signs of Breast Cancer, L Glassman.
 25. June 2008: Austria, Österreichische Röntgengesellschaft-Armed Forces Institute of Pathology, 15th Radiologisches Fortbildungsseminar, Evaluation of Breast Masses, L Glassman.
 26. June 2008: Austria, Österreichische Röntgengesellschaft-Armed Forces Institute of Pathology, 15th Radiologisches Fortbildungsseminar, Evaluation of Breast Calcifications, L Glassman.
 27. June 2008: Austria, Österreichische Röntgengesellschaft-Armed Forces Institute of Pathology, 15th Radiologisches Fortbildungsseminar, Interpretation of Breast MRI, L Glassman.
 28. December 2008. Chicago, IL. 94th Scientific Assembly and Annual Meeting of the Society of North America. Special Focus Session: "Endocrine Neoplasms from Head to Toe with Radiologic Pathologic Correlation," E Chung.

Other AFIP Pathology Department Courses

1. July 17, 2008: Bethesda, Maryland, 42nd Annual Dr. F. K. Mostofi and COL C. J. Davis, Jr. UROLOGICAL PATHOLOGY AND RADIOLOGY COURSE, "Pediatric Urology Radiologic Pathologic Correlation," E Chung.
2. July 17, 2008: Bethesda, Maryland, 42nd Annual Dr. F. K. Mostofi and COL C. J. Davis, Jr. UROLOGICAL PATHOLOGY AND RADIOLOGY COURSE, "Imaging of Radiology (Renal)," W Craig.
3. July 17, 2008: Bethesda, Maryland, 42nd Annual Dr. F. K. Mostofi and COL C. J. Davis, Jr. UROLOGICAL PATHOLOGY AND RADIOLOGY COURSE, "Imaging of Radiology (Retroperitoneum/Adrenal)," W Craig.
4. July 17, 2008: Bethesda, Maryland, 42nd Annual Dr. F. K. Mostofi and COL C. J. Davis, Jr. UROLOGICAL PATHOLOGY AND RADIOLOGY COURSE, "Imaging of Radiology (Scrotum/Testes)," W Craig.
5. July 17, 2008: Bethesda, Maryland, 42nd Annual Dr. F. K. Mostofi and COL C. J. Davis, Jr. UROLOGICAL PATHOLOGY AND RADIOLOGY COURSE, "Imaging of Radiology Case Review," W Craig.
6. July 17, 2008: Bethesda, Maryland, 42nd Annual Dr. F. K. Mostofi and COL C. J. Davis, Jr. UROLOGICAL PATHOLOGY AND RADIOLOGY COURSE, "Imaging of Prostatitis," W Craig.

Visiting Professorships:

1. July 17, 2008: New Hyde Park, NY, Long Island Jewish Medical Center, "Arthritis I Approach and Inflammatory Disease; Musculoskeletal Neoplasm: CT and MRI (Grand Rounds); Unknown Case Board Review," M. Murphey.
2. April 2008: Baylor College of Medicine, A. Levy.
3. May 5, 2008: Washington, DC, George Washington University Medical Center, A Frazier.

Non-AFIP Courses/Presentations:

1. January 9, 2008: Bethesda, MD, Uniformed Services University of the Health Sciences,

- MS4 Radiology Elective, "Radiology in the Combat Zone" and "Pediatric Musculoskeletal Radiology," H Harcke.
2. 9 January 2008: Riyadh, Saudi Arabia, Advances in Diagnostic and Interventional Radiology, "Advances in Our Understanding and Management of Adenocarcinoma," J Galvin.
 3. 9 January 2008: Riyadh, Saudi Arabia, Advances in Diagnostic and Interventional Radiology, "The Idiopathic Interstitial Pneumonias," J Galvin.
 4. 9 January 2008: Riyadh, Saudi Arabia, Advances in Diagnostic and Interventional Radiology, "HRCT Findings in Immune Compromised Patients," J Galvin.
 5. 14-15 January 2008: San Antonio, TX, Fort Sam Houston, Meeting of the Committee on Tactical Combat Casualty Care, "AFIP Findings Related to Tension Pneumothorax, Airway, and Intraosseous Infusion Devices," H Harcke.
 6. 7 February 2008: York, Yorkshire, England, British Society of Gastrointestinal Radiology, Richard Farrow Memorial Lecture, "Imaging and Management of Cystic Pancreatic Neoplasms," A Levy.
 7. 8 February 2008: York, Yorkshire, England, British Society of Gastrointestinal Radiology, "Tumors and Tumor-like Lesions of the Peritoneum and Mesentery," A Levy.
 8. 19 February 2008: Rancho Mirage, CA, Abdominal Radiology Course 2008 (the Society of Gastrointestinal Radiology and the Society of Uroradiology), "Imaging Differential Diagnosis of Gallbladder and Biliary Tract Disease Workshop," A Levy.
 9. 22 February 2008: Washington, DC, American Academy of Forensic Sciences Annual Scientific Meeting, "Postmortem Angiography in Support of Radiologic Assisted Autopsy," H Harcke, C Solomon, S Luzi.
 10. 26 February 2008: Bethesda, MD, Uniformed Services University of the Health Sciences, MS4 Radiology Elective, "Radiology in the Combat Zone" and "Pediatric Musculoskeletal Radiology," H Harcke.
 11. 27 February 2008: Bethesda, MD, Uniformed Services University of the Health Sciences, Radiology Grand Rounds, "Virtual Autopsy and MDCT Imaging," H Harcke, A Levy.
 12. 25 March 2008: Bethesda, MD, Uniformed Services University of the Health Sciences, U.S. Army Medical Command Current Concepts in Imaging, "Problem Oriented Approach to Liver Masses," A Levy.
 13. 26 March 2008: Bethesda, MD, Uniformed Services University of the Health Sciences, Army Medical Department Radiology Course: Current Concepts in Imaging, "Forensic Imaging/Virtual Autopsy," H Harcke.
 14. 27 March 2008: Wilmington, DE, Department of Medical Imaging, Alfred I DuPont Hospital for Children, Radiology Resident Conference, "The Limping Child," H Harcke.
 15. 24 April 2008: Bethesda, MD, Uniformed Services University of the Health Sciences, MS4 Radiology Elective, "Radiology in the Combat Zone" and "Pediatric Musculoskeletal Radiology," H Harcke.
 16. 14 May 2008: Lanstuhl, Germany (by video teleconference), ERMIC Med-Surg, "Pediatric GI Emergencies" and "Pediatric Airway and Chest," E Chung.
 17. June 2008: Philadelphia, PA, St. Christopher's Hospital for Children, Pediatric Grand Rounds, "Children's Healthcare in Afghanistan," H Harcke.
 18. 12 June 2008: Washington, DC, Walter Reed Army Medical Center, Armed Forces Institute of Pathology, Worldwide Grand Rounds (Video and Audio Teleconference), "Radiology Assisted Autopsy," H Harcke.
 19. 4-8 August 2008: Dover, DE, Air Force Mortuary Affairs Operations Center, Dover Air Force Base, US Air Force Sustainment Training Course, "Forensic Radiology," H Harcke.
 20. 4 September 2008: Boston, MA, Department of Radiology, Boston University School of Medicine, Unknown Case Conference, L Glassman.
 21. 4 September 2008: Boston, MA, Department of Radiology, Boston University School of Medicine, Grand Rounds, Interpretation of Breast MRI, L Glassman.
 22. 5 September 2008: Boston, MA, Jack Meyer Lecture, New England Roentgen Ray Society, Pathologic Basis of Common Signs in Breast Imaging, L Glassman.
 23. 9 September 2008: Baltimore, MD, Shoshen 2008 – Joint Israel and United States Military Medicine Conference, "Virtual Autopsy," H Harcke.
 24. 3 October 2008: Orlando, FL, The American College of Gastroenterology Annual Scientific Meeting and Postgraduate Course, "Pathology and Imaging of the Colon," A Levy.
 25. 8 October 2008: Bethesda, MD, Uniformed Services University of the Health Sciences, MS4 Radiology Elective, "Radiology in the Combat Zone" and "Pediatric Musculoskeletal

Radiology," H Harcke.

26. 21-25 October 2008: Buenos Aires, Argentina, Musculoskeletal Ultrasound Society, Faculty Eighteenth Annual Meeting, H Harcke.
27. 22 October 2008: Pittsburg, PA, Advancing Practice, Information, & Innovation through Informatics, "Virtual Autopsy and Postmortem MDCT," A Levy.
28. November 2008: Wilmington, DE, Nemours/DuPont Hospital for Children, Pediatric Trauma: Protecting Our Future, "Blast Injury," H Harcke.
29. 10-12 November 2008: Rockville, MD, Armed Forces Institute of Pathology/Office of the Armed Forces Medical Examiner Basic Forensic Pathology Course, "Forensic Imaging," H Harcke.
30. 13-14 November 2008: Wilmington, DE, Alfred I. DuPont Hospital for Children, Hip and Musculoskeletal Ultrasound Symposium, Faculty Lecturer, H Harcke.
31. 17 November 2008: Bethesda, MD, Uniformed Services University of the Health Sciences, MS4 Radiology Elective, "Radiology in the Combat Zone" and "Pediatric Musculoskeletal Radiology," H Harcke.
32. 1-4 December 2008: Chicago, IL, Radiological Society of North America, 94th Annual Meeting, "Refresher Course: Pulmonary Vascular Disease," A Frazier.
33. 1-4 December 2008: Chicago, IL, Radiological Society of North America, 94th Annual Meeting, "Forensic Imaging, Refresher Course," A Levy.
34. 1-4 December 2008: Chicago, IL, Radiological Society of North America, 94th Annual Meeting, "Endocrine Neoplasia (A Radiologic-Pathologic Review)," C Craig.
35. 1-4 December 2008: Chicago, IL, Radiological Society of North America, 94th Annual Meeting, "Refresher Course Faculty: Interventional Ultrasound Techniques" and "Refresher Course Faculty: Forensic Radiology," H Harcke.

Departmental Conferences:

Intramural:

Gastrointestinal Radiology:

- 2 (1 hours) per month, Gastrointestinal Pathology Conference
- 1 (1 hour) per month, Hepatic Pathology Conference
- 6 (1.5 hour) per year, Endocrine Pathology Conference

Genitourinary Radiology:

- 2 (2 hours) per month, Genitourinary Pathology Conference
- 1 (1.5 hour) per month, Endocrine Pathology Conference

Mammography:

- 1(1 hour) per year, Gynecologic and Breast Pathology Conference

Musculoskeletal Radiology:

- 23 (1 hour) per month Orthopedic / Soft Tissue Pathology Conferences
- 4 (1 hour) per year Oral and Maxillofacial Pathology Conference

Neuroradiology

- 4 (1 hour) per month, Neuropathology Conference

Pediatric Radiology

- 7 (2 hour) per year, Pediatric Pathology Conference.
- 2 (2 hour) per year, Neuropathology Conference.
- 1 (2 hour) per year, Hepatic pathology conference.
- 2 (2 hour) per year, Ophthalmic pathology.
- 2 (2 hour) per year, GI pathology.
- 2 (2 hour) per year, Genitourinary pathology.
- 1 (2 hour) per year, Endocrine pathology.

Pulmonary and Mediastinal Radiology:

- 2 (2 hours) per month, Pulmonary and Mediastinal Pathology Conference for class cases.
- 6 (1 hour) per year, Cardiovascular Pathology Conference for class cases.
- 2 (1.5 hours) per week review of clinical consults.

Extramural:

Gastrointestinal Radiology

- 2 (1 hour) per month, Department of Radiology and Nuclear Medicine (MS-4 Radiology), Uniformed Services University of the Health Sciences
- 1 (1 hour) per month, Department of Gastroenterology, Walter Reed Army Medical Center
- 1 (1 hour) per year, Department of Pathology (MS-2 Pathology), Uniformed Services University of the Health Sciences
- 1 (1 hour) per year, Department of Radiology and Radiological Sciences (MS-2 Radiology), Uniformed Services University of the Health Sciences
- 1 (1 hour) per year, Department of Anatomy (MS-1 Anatomy), Uniformed Services University of the Health Sciences
- 3 (1 hour) per year, Department of Nephrology, Walter Reed Army Medical Center.

Genitourinary Radiology

- 1 (1 hour) per year, Department of Radiology and Radiological Sciences (MS-2 Radiology), Uniformed Services University of the Health Sciences.
- 1 (1 hour) per year, National Capital Area Residents.

Musculoskeletal Radiology:

- 1 (1.5 hours) conference per month, Orthopedic Resident Conference, Walter Reed Army Medical Center
- 2 (1 hour) conferences per month, Rheumatology Conference, Walter Reed Army Medical Center
- 1 (1 hour) conference per month, Rheumatology Conference, National Institutes of Health
- 1 (1 hour) conference per month, Rheumatology Conference, Washington Hospital Center
- 1 (1 hour) conferences per year, Sports Medicine and Arthroscopy Conference, Walter Reed Army Medical Center

Pulmonary**Forensic Radiology:**

- 20 (1 hour) conferences per year, Orientation to Virtual Autopsy. Training at Port Mortuary, Dover AFB for military radiology personnel from the United Kingdom.
- 20 (1 hour) conferences per year, Virtual Autopsy Sustainment Training. Orientation and Training, for USAF Radiologists conducted at Port Mortuary, Dover AFB.
- 20 (1 hour) conferences per year, Virtual Autopsy Sustainment Training. Orientation and Training, for USAF Radiologists conducted at Port Mortuary, Dover AFB.

Radiology:**Neuroradiology**

- 4 (1 hour) per month, Neuropathology Conference

Seminars:

One hundred seventy-one seminars were conducted:

Gastrointestinal Radiology:

- 26 (1 hour) per year, Department of Radiology, Uniformed Services University of the Health Sciences.
- 3 (1 hour) per year, National Capital Area Radiology Residents.
- 10 (1 hour) per year, National Capital Area Gastroenterology Fellows.

Musculoskeletal Radiology:

- 8 (1 hour) per year, Uniformed Services University of the Health Sciences

Neuroradiology:

- 2 (1 hour) per year, Walter Reed Army Medical Center

Pediatric Radiology:

- 4 (1 hour) per year, Walter Reed Army Medical Center
- 4 (2 hour) per year, USUHS Department of Radiology – Pediatric Emergency Radiology to 4th year medical students.
- 3 (3.5h) Board Review – WRAMC.
- 1 (3H) Board Review – Georgetown University Hospital.
- 5 (1 hour) Lecture to Radiology Residents – Georgetown University.
- 1 (1 hour) Children's National Medical Center Department of Radiology – to Radiology Residents and Pediatric Radiology Fellows.
- 2 (2 hour) USUHS Pathology Small Group Session (2h) MS-II Pathology Course

1 (1 hour) USUHS MS-IV Intercessions Pediatric Radiology

Pulmonary and Mediastinal Radiology:

10 (1 hour) per year, University of Maryland Medical Center

Forensic Radiology

2 (10 hours) per year, Musculoskeletal Ultrasound: The Infant Hip and Other Applications. Lectures and Practicum. DuPont Hospital for Children, Wilmington, DE.

2 (10 hours) Oct 2007: Musculoskeletal Ultrasound: The Infant Hip and Other Applications. Lectures and Practicum. DuPont Hospital for Children, Wilmington, DE.

RESEARCH

Research is based on the contents of the departmental archives, which are mainly derived from cases contributed by residents attending the Radiologic Pathology Courses, collaboration with outside investigators, and primary investigational projects by the department staff. The department published 24 journal articles, 3 abstracts, 2 book, 8 book chapter, 1 scientific exhibits, 1 electronic publications, 6 investigative research projects.

Publications:

Journal Articles Published in 2008:

1. Chung EM, Murphey MD, Cube R, Smirniotopoulos JG, Specht CS. From the archives of the AFIP: pediatric orbit tumors and tumor-like lesions: nonosseous lesions of the extra-ocular orbit. *RadioGraphics*. 2008 Jul-Aug; 28(4):1193-1214.
2. Craig WD, Fanburg-Smith JC. From the archives of the AFIP: fat containing masses of the retroperitoneum. *RadioGraphics*. 2008; 29:261-90.
3. Frazier AA, Franks TJ, Cooke EO, Mohammed TL, Pugatch RD, Galvin JR. From the archives of the AFIP: pulmonary alveolar proteinosis. *RadioGraphics*. 2008 May-Jun; 28(3):883-99, quiz 915.
4. Glassman, LM. Pathologic basis of breast imaging. *Acta Radiologica Portuguesa*. 2008; 20:17-24.
5. Glassman, LM. Breast masses, benign and malignant. *Acta Radiologica Portuguesa*. 2008; 20:25-32.
6. Glassman, LM. Breast calcifications. *Acta Radiologica Portuguesa*. 2008; 20:33-40.
7. Glassman, LM. Uncommon signs of breast cancer. *Acta Radiologica Portuguesa*. 2008; 20:87-94.
8. Glassman, LM. Breast MRI in cancer diagnosis. *Acta Radiologica Portuguesa*. 2008; 20:95-103.
9. Glassman, LM. The male breast. *Acta Radiologica Portuguesa*. 2008; 20:105-112.
10. Harcke, HT, Levy AD, Getz, JM, Robinson SR. MDCT analysis of projectile injury in forensic investigation. *American Journal of Roentgenology*. 2008; 190:W106-11.
11. Kim J, Smith AB, Dillon W, Wintermark M. Clinical relevance of contrast extravasation on CT-angiography and post-contrast CT in patients with primary intracerebral hemorrhage. *Am J Neuroradiol*. 2008; 29:520-25.
12. Levy AD, Arnaiz J, Shaw JC, Sobin LH. Primary peritoneal tumors: imaging features with pathologic correlation. *RadioGraphics*. 2008; 28:583-607.
13. Ozbudak IH, Shilo K, Hale S, Aguilera NS, Galvin JR, Franks TJ. Alveolar airspace and pulmonary artery involvement by extramedullary hematopoiesis: a unique manifestation of myelofibrosis. *Arch Pathol Lab Med*. 2008 Jan; 132(1):99-103.
14. Rushing EJ, Liappis A, Smirniotopoulos JG, Smith AB, Henry JM, Nelson AM. Immune reconstitution inflammatory syndrome of the brain: clinicopathological study of six cases. *The FASEB Journal*. 2008; 22:708.
15. Siegel MJ, Chung EM. Wilms' tumor and other pediatric renal masses. *Magn Reson Imaging Clin N Am*. 2008 Aug; 16 (3):479-97.
16. Siegel MJ, Chung EM, Conran, RM. Pediatric liver: focal masses. *Magn Reson Imaging Clin N Am*. 2008 Aug; 16(3):437-52.
17. Smith AB, Chin CT, Gupta N, Strober JB. Magnetic resonance neurography in children with birth-related brachial plexus injury. *Pediatric Radiol*. 2008; 38(2):159-63.
18. Smith AB, Dillon WP, Lau BC, Gould R, Verdun FR, Lopez EB, Wintermark M. Successful implementation of a radiation dose reduction strategy for CT protocols in a neuroradiology section. *Radiology*. 2008; 246:499-506.
19. Smith AB, Glenn OA. Magnetic resonance imaging following suspicion for fetal brain

- anomalies. *Ultrasound Clinics*. 2008; 3:559-82.
20. Smith AB, Smirniotopoulos JG, Rushing EJ. From the archives of the AFIP: radiologic-pathologic correlation of central nervous system infections in human immunodeficiency virus infection. *RadioGraphics*. 2008; 28:2033-58.
 21. Wieneke J, Smith AB. Parathyroid adenoma. *Head and Neck Pathol*. 2008; 2:305-08.

Two journal articles are in press.

Book Chapters:

1. DiPietro MA, Harcke, HT. Development Dysplasia of the Hip. In: Slovis, T (ed): *Caffey's Pediatric Diagnostic Imaging*, 11th Edition. Philadelphia: Mosby Elsevier 2008: 3049-3066.
2. Frazier AA (Illustrator). Anthrax, Plague, Glanders, Meliodosis, In: Dembek, ZF (ed): *Textbooks of Military Medicine: Medical Aspects of Biological Warfare*. Washington, DC: Borden Institute, US Army Medical Department, Office of the Surgeon General, 2008.
3. Levy AD. Imaging and staging of gastrointestinal stromal tumors. In: Jankowski J, Sampliner R, Kerr D, Fong Y (eds): *Gastrointestinal oncology: a critical MDT approach*. Blackwell, London, 2008.
4. Strouse PJ, Harcke, HT. Alignment Disorders. In: Slovis, T (ed): *Caffey's Pediatric Diagnostic Imaging*, 11th Edition. Philadelphia: Mosby Elsevier 2008: pp 2864-2882.

Four book chapters are in press.

Books:

1. Frazier AA (Chief Medical Illustrator), Nessen SC, Lounsbury DE, Hetz SP (eds). *War Surgery in Afghanistan and Iraq: A Series of Cases, 2003-2007*. Washington, DC: Borden Institute, US Army Medical Department, Office of the Surgeon General, 2008.
2. Osborn AG, Abbara S, Birdwell RL, Elster AD, Gardiner GA, Levy AD, Manaster BJ, Oestreich AE, Rosado de Christenson ML (eds). *Year book of diagnostic radiology* 2008. Mosby, Philadelphia, 2008.

Scientific Abstracts:

1. Ali-Khan MM, Smith AB, Rushing EJ, Smirniotopoulos JG. Choroid plexus neoplasms: are there imaging features of malignancy? RSNA 2008.
2. Patel N, Smith AB, Smirniotopoulos JG, Rushing EJ. Unique CT and MR imaging findings in adult pilocytic astrocytomas. American Society of Neuroradiology. May 2008.
3. Smith AB, Smirniotopoulos JG, Rushing EJ, Goldstein S. Bilateral thalamic lesions: a pictorial essay. American Roentgen Ray Society. April 13-18, 2008.

Scientific Exhibits:

MDCT features of postmortem change and decomposition. Levy AD, Harcke HT, Mallak CM, et al. Presented at the 94th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL., November 29 – December 5, 2008.

Electronic Publications:

Electronic publication of the 2008-2009 Radiologic Correlation Syllabus.

Projects:

Investigative:

1. Anti-CV2 paraneoplastic limbic encephalopathy presenting as Jakob-Creutzfeldt disease (CJD). Pending submission.
2. Chung EM, Levy AD, Miettinen M, Siegel MJ. Gastrointestinal stromal tumors in the pediatric population.
3. Kim J, Smith AB, Dillon W, Wintermark M. CT correlation with outcome in patients with SAH. Pending submission. Armstrong-Wells JL, Haman A, Smith A, Mukherjee P, Abrams GM, Geschwind MD.
4. Harcke, HT, Levy AD. Virtual autopsy techniques.
5. Rushing EJ, Chung EM. Clinicopathological features of spinal cord lesions in children.
6. Siegel MJ, Chung EM. Hepatoblastoma: radiologic-pathologic correlation in 150 cases.

Educational:

1. Chung EM, Specht C, Schroeder JW, Cube R, Smirniotopoulos JA. Pediatric orbit tumors and tumor-like conditions.
2. Chung EM, Glassman LM. Breast lesions in children and adolescents.

Collaborators:

1. Military/Federal:

1. J Smirniotopoulos, MD, Uniformed Services University of the Health Sciences, Bethesda, MD.
2. AD Levy, COL, MC, USA, Uniformed Services University of the Health Sciences, Bethesda, MD.

2. Civilian, U.S.:

1. American College of Radiology
2. American Osteopathic College of Radiology
3. American Roentgen Ray Society
4. Association of University Radiologists
5. Association of Program Directors in Radiology
6. Radiological Society of North America
7. Department of Radiology, University of Maryland Medical Center

3. Civilian, International:

1. Curso de Correlação Anatomo-Radiologica, Lisbon, Portugal
2. Fundación XIII Congreso Internacional de Radiologica, Madrid, Spain
3. Japanese College of Radiology, Kobe, Japan
4. Jornada Paulista de Radiologica, São Paulo, Brazil
5. Journées Françaises de Radiologie, Paris, France
6. Österreichische Röntgengesellschaft, Vienna, Austria
7. International Society of Skeletal Radiology

PROFESSIONAL ACTIVITIES

Official Trips:

1. March 2008: European Congress of Radiology, Vienna, Austria, D Hatley (ARP), K Rahimly (ARP).
2. May 2008: 38th Jornada Paulista de Radiologia, Sao Paulo, Brazil, E Chung (AFIP), A Levy (AFIP), C Williams (ARP).
3. June 2008: Sociedade Portuguesa de Radiologia e Medicina Nuclear (SPRMN)-Armed Forces Institute of Pathology, Lisbon, Portugal, XI Curso de Correlação Anátomo Radiológica, L Glassman (ACR).
4. June 2008: Österreichische Röntgengesellschaft-Armed Forces Institute of Pathology, 15th Radiologisches Fortbildungsseminar, L Glassman (ACR).
5. June 2008: Fundación Espanola de Radiología-Armed Forces Institute of Pathology, XIX Curso Internacional de Correlación Radio-Patológica, Madrid, Spain. L Glassman (ACR).
6. June 2008: Emergency Cardiovascular Care Update, International Educational Conference & Exposition, Las Vegas, NV, D Hatley (ARP).
7. July 2008: American Healthcare Radiology Administrators, Denver, CO, D Hatley (ARP).
8. December 2008: Chicago, IL. 94th Scientific Assembly and Annual Meeting of the Society of North America, W Craig (AFIP), MD Murphey (ARP), E Chung (AFIP) A Levy (AFIP), J Galvin (ARP) A Frazier (ARP), C Williams, D Hatley (ARP) J Rees (ARP), A Smith (AFIP).

Committees:

Craig WD

Education Editorial Board for *RadioGraphics*

Frazier AA

Member, Exhibit Awards Committee, Society of Thoracic Radiology

Galvin JR

1. Member, Education Subcommittee, Society of Thoracic Radiology
2. Member, Task Force 8 Project Team – Database development for Distance Learning and Education, Armed Forces Institute of Pathology

Glassman LM

1. Chair, Radiological Devices Panel, Center for Devices and Radiological Health, United States Food and Drug Administration

2. Guest Examiner, American Board of Radiology

Harcke HT

1. Member, Subcommittee on Developmental Dysplasia of the Hip, American Academy of Pediatrics.
2. Member [representing the American Institute of Ultrasound in Medicine], American College of Radiology Collaborative Subcommittee for Practice Guideline on Performance of the Ultrasound Examination of the Hip for Detection and Assessment of Developmental Dysplasia of the Hip.

Levy AD

1. USUHS School of Medicine Admissions, Applicant Interviewer
2. Member, Gastrointestinal Radiology Exhibits Committee

Murphey MD

1. Member, Scientific Exhibits Committee, Musculoskeletal Section, American Roentgen Ray Society
2. Member, Radio Graphics Exhibit Review Committee, Musculoskeletal Section, Radiological Society of North America
3. Member, CPI/Musculoskeletal Radiology Expert Review Panel, American College of Radiology
4. Member, Program Committee, Society of Skeletal Radiology
5. Member Rules Committee, International Skeletal Society
6. Member, Closed Meeting Planning Committee, International Skeletal Society

Editorial Boards:**Chung EM**

Editorial Board, *RadioGraphics*

Craig WD

Editorial Board, *RadioGraphics*

Murphey MD

Editorial Board, *Skeletal Radiology*

Frazier AA

Associate Editor, *FOCUS*, newsletter of American Association of Women in Radiology

Galvin JR

1. Deputy Editor, *RadioGraphics*
2. Associate Editor, Education Center Materials, Radiological Society of North America

Glassman L

Editorial Advisory Panel, *American Journal of Roentgenology*

Levy AD

1. Associate Editor, Yearbook of Diagnostic Radiology
2. Editorial Board, Radiology Case Reports
3. Radiology Advisory Group, Oxford University Press

Journal Reviews:**Frazier AA**

Manuscript reviewer, *American Journal of Roentgenology*

Galvin JR

1. Manuscript reviewer, *American Journal of Roentgenology*
2. Manuscript reviewer, *RadioGraphics*
3. Manuscript reviewer for the Symposium for Computer Assisted Radiology

Glassman LM

1. Editorial Board, *American Journal of Roentgenology*
2. Manuscript reviewer, *American Journal of Roentgenology*
3. Manuscript reviewer, *RadioGraphics*

4. Manuscript reviewer, *Radiology*

Harcke HT

Manuscript reviewer, *Journal Pediatric Orthopedics*

Levy AD

1. Manuscript reviewer, *Journal of Computer Assisted Tomography*
2. Manuscript reviewer, *RadioGraphics*
3. Manuscript reviewer, *Radiology*

Murphey MD

1. Manuscript reviewer, *American Journal of Roentgenology*
2. Manuscript reviewer, *RadioGraphics*
3. Manuscript reviewer, *Radiology*
4. Manuscript reviewer, *Skeletal Radiology*

Smith AB

1. Manuscript reviewer, *American Journal of Roentgenology*
2. Manuscript reviewer, *RadioGraphics*
3. Manuscript reviewer, *Pediatric Radiology*
4. Manuscript reviewer, Radiology Corner in *Military Medicine*



Allen Burke, MD
Chair
Date of Appointment – 2009

DEPARTMENT OF CARDIOVASCULAR PATHOLOGY

STAFF

Allen Burke, MD
Scientific
Nathaniel Cresswell, MS

IMPACT

The department of Cardiovascular Pathology re-opened in mid-2008. It has contributed to military readiness by providing on-site consultation to the OAFME in gross heart diagnosis, medicolegal support to OAFME cases, and lectures to WRAMC pathology residents and cardiology fellows. Its contribution to civilian medicine includes publications and reviews of manuscripts to several leading journals. Research includes studies in cardiomyopathy and coronary artery disease. New techniques in coronary stenting evaluation have been developed.

CONSULTATION

The department of Cardiovascular Pathology provides consultation to the OAFME, military and VA hospitals, civilian hospitals and regional medical examiners. In addition, consults are sent from throughout the country and from foreign sites. A large proportion of cases are sent as gross hearts, which require radiography, dissection, coronary decalcification, and gross photography before processing and microscopic study, which may result in hours of evaluation. The OAFME cases are of special military relevance, and require travel to the Rockville site, on-site teaching to the military medical examiners, dissection often involving special techniques including conduction system studies, and frequent subsequent medicolegal consultation after hours and on weekends. Nevertheless these cases are considered only as interdepartmental consultations and not "cases" assigned to the department. Case numbers reflect only the fourth quarter of 2008, as significant consultations began in approximately October when the reopening the department became known among likely contributors.

Clinical appointments:

Staff Pathologist, University of Maryland Medical Center, A Burke

Deployments

1. September 3, 2008: WRAMC pathology, resident lecture, "Ischemic heart disease," A Burke
2. September 8, 2008: WRAMC pathology, resident lecture, "Heart tumors transplant," A Burke
3. September 10, 2008: WRAMC pathology, resident lecture, "Congenital heart disease," A Burke
4. September 14, 2008: WRAMC pathology, resident lecture, "Myocardial disease," A Burke
5. September 17, 2008: WRAMC pathology, resident lecture, "Sudden cardiac death," A Burke
6. September 22, 2008: WRAMC pathology, resident lecture, "Aneurysms," A Burke
7. September 24, 2008: WRAMC pathology, resident lecture, "Vasculitis," A Burke

8. September 29, 2008: WRAMC cardiology, staff heart conference, A Burke
9. November 6, 2008: WRAMC cardiology, staff heart conference, A Burke
10. December 10, 2008: WRAMC pediatrics, conference, "Vasculitis," A Burke

EDUCATION

AFIP Courses:

1. November 14, 2008: "Sudden cardiac death," Annual Course, Principles of Forensic Pathology, Armed Forces Institute of Pathology,
2. March 27, 2008: Lecturer, Update and Review of Anatomic Pathology

The department of Cardiovascular Pathology does not currently have its own space, so visiting physicians are not possible.

Faculty appointments outside the AFIP:

1. Associate professor, University of Maryland
2. Adjunct professor, Georgetown University
3. Associate Professor, Howard University

Presentations:

1. February 2008: District of Columbia, AFIP, "Life cycle of the atherosclerotic plaque: implications for plaque imaging and biomarkers," A Burke
2. September 2008: Baltimore MD, University of Maryland, "Congenital heart disease," A Burke
3. September 2008: District of Columbia Medical Examiners, Heart conference, A Burke
4. September 2008: Baltimore MD, University of Maryland, "Cardiomyopathy," A Burke
5. October 2008: Baltimore MD, University of Maryland, "Tumors of the thymus," A Burke
6. October 2008: District of Columbia, Georgetown University, "Cardiomyopathy and myocarditis," A Burke
7. October 2008: Athens Greece, XVIIth International Academy of Pathology Congress, "Malignant cardiac tumors," A Burke
8. October 2008: San Francisco, CA, American College of Rheumatology 72nd ACR Annual Scientific Meeting, Slide Seminar: Vasculitis Syndromes, A Burke
9. October 2008: District of Columbia, Georgetown University, "Aneurysms and vasculitis," A Burke
10. October 2008: District of Columbia, Howard University Hospital, Heart conference, A Burke
11. November 2008: Rockville MD, AFIP Annual Course, Principles of Forensic Pathology, "Sudden cardiac death," A Burke
12. November 2008: District of Columbia Medical Examiners, Heart conference, A Burke
13. November 2008: New Orleans, LA, American Heart Association Annual Sessions, "Immunolocalization of fibrin in coronary atherosclerosis," Cresswell
14. November 2008: New Orleans, LA, American Heart Association Annual Sessions, "Distal coronary disease, a comparison with proximal lesions," Cresswell
15. November 2008: District of Columbia, Veteran's Affairs Hospital, Heart conference, A Burke
16. December 2008: Baltimore MD, University of Maryland, "Acute myocardial infarction," A Burke
17. December 2008: Baltimore MD, University of Maryland, "Pathology of hypertension," A Burke

RESEARCH

Journal Articles:

1. Burke A. Primary malignant cardiac tumors. *Semin Diagn Pathol.* 2008;25:39-46.
2. Burke A, Jeudy J, Jr., Virmani R. Cardiac tumours: an update: Cardiac tumours. *Heart.* 2008;94:117-23.
3. Burke A, Virmani R. Pediatric heart tumors. *Cardiovasc Pathol.* 2008;17:193-8.
4. Burke AP, Tavora F, Narula N, Tomaszewski JE, Virmani R. Aortitis and ascending aortic aneurysm: description of 52 cases and proposal of a histologic classification. *Hum Pathol.* 2008;39:514-26.
5. Gonzalez-Cuyar LF, Cresswell NB, Burke AP. Sodium polystyrene sulfonate (Kayexalate)

- aspiration. *Diagn Pathol*. 2008;3:27.
6. Gonzalez-Cuyar LF, Lam-Himlin D, Tavora F, Burke A, Castellani RJ. Bilateral internal carotid absence: a case report of a rare congenital anomaly. *Cardiovasc Pathol*. 2008;17:113-6.
 7. Gonzalez-Cuyar LF, Tavora F, Zhao XF, et al. Angiolymphoid hyperplasia with eosinophilia developing in a patient with history of peripheral T-cell lymphoma: evidence for multicentric T-cell lymphoproliferative process. *Diagn Pathol*. 2008;3:22.
 8. Tavora F, Burke A, Kutys R, Li L, Virmani R. Total anomalous origin of the coronary circulation from the right pulmonary artery. *Cardiovasc Pathol*. 2008;17:246-9.
 9. Tavora F, Burke A, Li L, Franks TJ, Virmani R. Postmortem confirmation of Lyme carditis with polymerase chain reaction. *Cardiovasc Pathol*. 2008;17:103-7.
 10. Tavora F, Crowder C, Kutys R, Burke A. Discrepancies in initial death certificate diagnoses in sudden unexpected out-of-hospital deaths: the role of cardiovascular autopsy. *Cardiovasc Pathol*. 2008;17:178-82.
 11. Tavora F, Crowder CD, Sun CC, Burke AP. Discrepancies between clinical and autopsy diagnoses: a comparison of university, community, and private autopsy practices. *Am J Surg Pathol* 2008;129:102-9.
 12. Tavora F, Gonzalez-Cuyar LF, Dalal JS, et al. Fatal parvoviral myocarditis: a case report and review of literature. *Diagn Pathol*. 2008;3:21.
 13. Tavora F, Miettinen M, Fanburg-Smith J, Franks TJ, Burke A. Pulmonary artery sarcoma: a histologic and follow-up study with emphasis on a subset of low-grade myofibroblastic sarcomas with a good long-term follow-up. *Am J Surg Pathol*. 2008;32:1751-61.

Abstracts:

1. Burke A, Cresswell N, Kutys R, Li L, Virmani R. Pathologic features of hypertrophic cardiomyopathy in exertional and non-exertional sudden deaths. *Mod Pathol*. 21:62A, 2008.
7. Burke AP, Kutys R, Ladich E, Virmani R. Distal coronary artery disease has less calcification, macrophage infiltrates and necrotic cores, and fewer thin cap fibroatheromas independent of percent stenosis. *Circulation*. 118:1050A, 2008
3. Burke AP, Ladich E, Kutys R, Kolodgie F, Virmani R. Immunolocalization of fibrin in early and late atherosclerotic plaques: Implications for its role in coronary plaque progression. *Circulation*. 118:478A, 2008
4. Cresswell N, Kutys R, Virmani R, Burke A. Morphologic findings of coronary culprit lesions in premature familial sudden coronary death. *Mod Pathol*. 21:62A, 2008.
4. Cresswell N, Kutys R, Li L, Franks T, Virmani R, Burke A. Cardiac sarcoidosis and sudden death. *Mod Pathol*. 21:63A, 2008
5. Ladich E, Nakazawa G, Cook S, Windecker S, Burke A, Kolodgie F, Virmani R. Pathology of hypersensitivity in late DES thrombosis. *Circulation*. 118:1047A, 2008
6. Lam-Himlin D, Tavora F, Drachenberg C, Burke A. Significance of B-cells in heart biopsies for allograft rejection, and incidence of non-endocardial "Quilty-like" lesions. *Mod Pathol*. 21:64A, 2008.
8. Maxfield K, Burke AP, Pacheco E, Virmani R. Distal coronary disease has less calcification, macrophage infiltration and necrotic core than proximal coronary artery disease, independent of percent stenosis. *Mod Pathol*. 21:65A, 2008
9. Schwartz RS, Burke AP, Farb A, Kaye D, Lesser JR, Virmani R. Myocardial Microvascular Obstruction in Sudden Death from Acute Myocardial Infarction Occurs more often in Coronary Plaque Erosion than in Plaque Rupture. *Circulation*. 118:1046A, 2008

Book Chapters:

1. Burke A, Ladich E, Kutys R, Maxfield K, Kolodgie FD, Virmani R. The Thrombotic AMI Lesion: Lessons from Pathology. In: *Textbook of STEMI Interventions*, Ed. Mehta S, 2008 Malvern PA, pp 3-12.
2. Burke A, Ladich E, Virmani R. Pathology of angioplasty and stenting. In: *Atlas of Cardiovascular Pathology for the Clinician*, Second Edition. McManus B, Ed. Current Medicine, Philadelphia, 2008, pp 93-100.
3. Burke A, Jeudy J, Lee, C-H, McManus B, Virmani R. Primary and Secondary Tumors of the Cardiovascular System. *Atlas of Cardiovascular Pathology for the Clinician*, Second Edition. McManus B, Ed. Current Medicine, Philadelphia, 2008, pp 275-284.
4. Burke A, Jeudy J, Virmani R. Cardiac tumours: an update. *Heart*. 2008; 94(1):117-23.

Projects:

Ongoing research projects and open protocols, especially those relevant to military readiness.

1. Arrhythmogenic cardiomyopathy, morphologic patterns in sudden cardiac death
2. Hypertrophic cardiomyopathy, morphologic patterns in sudden cardiac death
3. Vasa vasorum in coronary atherosclerosis
4. Focal myocarditis, significance in sudden death in military

Collaborators in research projects:

Military:

Robert E. Eckart, LTC USA, Department of Defense Cardiovascular Death Registry Group;
Carol Solomon, CDR, USN, OAFME

Civilian:

Ling Li, David Fowler, Mary Ripple, OCME, Baltimore MD; Jean Jeudy, Mandeep Mehra,
University of Maryland; Jeffrey Galvin, AFIP

PROFESSIONAL ACTIVITIES

Official trips:

1. October 2008: XVIIth International Academy of Pathology Congress, Athens Greece, "Malignant Cardiac Tumors," A Burke (ARP)
2. October 2008: American College of Rheumatology 72nd ACR Annual Scientific Meeting, San Francisco CA, Slide Seminar: Vasculitis Syndromes (ARP)

Editorial work:

Dr. Burke serves on the editorial board of Pathology and Cardiovascular Pathology, and as an ad hoc reviewer for *Circulation*, *Human Pathology*, *Modern Pathology*, *Archives of Pathology*, *Journal of Forensic and Legal Medicine*, *American Journal of Surgical Pathology*, *American Journal of Pathology*, *American Journal of Transplantation*, *Atherosclerosis*, *International Journal of Cardiology*, *Heart Vessels*, *Journal of the American College of Cardiology*, *Arteriosclerosis*, *Thrombosis* and *Vascular Biology*, and has reviewed approximately 50 manuscripts in 2008.

DIRECTORATE OF FIELD OPERATIONS

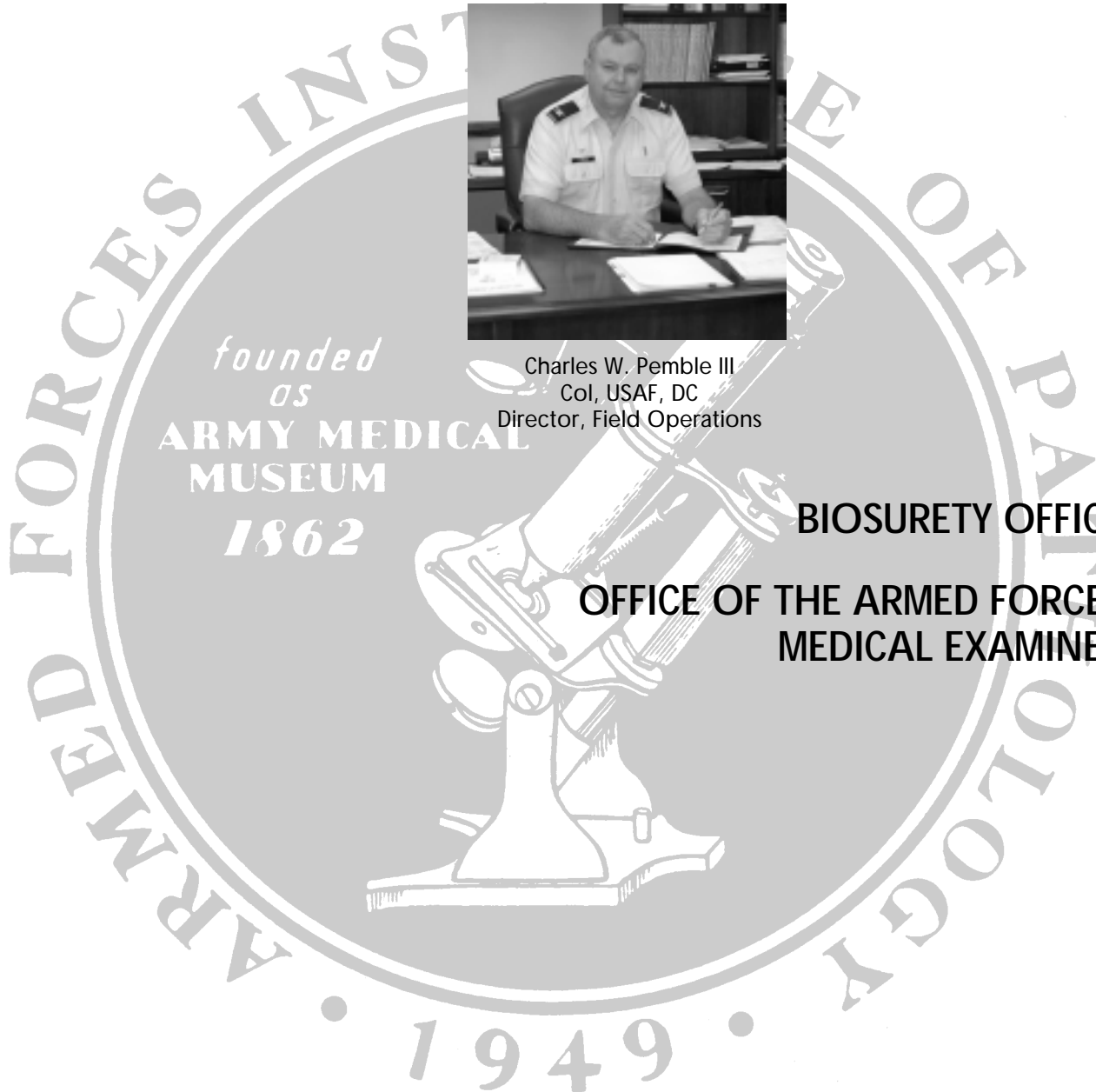


Charles W. Pemble III
Col, USAF, DC
Director, Field Operations

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as*
**ARMY MEDICAL
MUSEUM**
1862

BIOSURETY OFFICE

**OFFICE OF THE ARMED FORCES
MEDICAL EXAMINER**





Charles W. Pemble III, Col, USAF, DC
Director, Field Operations
Date of Appointment — 28 January 2002

DIRECTORATE OF FIELD OPERATIONS

STAFF

Eric Peipelman, Maj, USAF, MSC, Administrative Officer

IMPACT

The directorate provides:

- Staff coordination for operational readiness planning, mobilization, and training.
- Facilitates delivery of maximum medicolegal and forensic science support from the AFIP to US Army and DoD operations.
- Enhancement of the OAFME and supporting pathology processes that contribute to medicolegal investigations, environmental and infectious disease threat assessment, and implementation of field-focused support and assistance through the departments of Veterinary Pathology and Telepathology.

The directorate also ensures regulatory compliance with the Institute's Biosurety program in the use and transfer of biological select agents and toxins, in support of basic and applied biologic research projects.

OFFICE OF BIOSURETY

MISSION

The Office of Biosurety is responsible to the Director of Field Operations for managing AFIP's Biosurety Program and ensuring all requirements are met as established by DoD directives, Code Of Federal Regulations, United States Army Medical Command (MEDCOM), and the Army Biosurety Program. The Biosurety Program is also responsible for meeting all Centers for Disease Control and Prevention (CDC), and United States Department of Agriculture (USDA) requirements for storage, use and transfer of all Biological Select Agents and Toxins (BSATs). The Office of Biosurety controls and monitors access to areas where BSATs are stored and used. The application of the Biosurety Program establishes a safe, secure and reliable working environment for assigned personnel and visitors, and to safeguard the biological assets in support of AFIP's mission.

ORGANIZATION

The Office of Biosurety is organized under the Directorate of Field Operations.

1. Biosurety Officer – David Valentine, LT, USN
2. Responsible Official – Charles Pemble, Col, USAF
3. Alternate Responsible Official – Mary Klassen-Fischer, MD

ACCOMPLISHMENTS

1. Updated the Biosurety Plan and Standard Operating Procedures for the AFIP IAW with DoD Directive 5210.88, DoD Directive 5210.89, draft AR 50-X, AR 190-17, 7 CFR Part 331, 9 CFR Part 121, and 42 CFR Part 73.
2. Rechartered the Biosurety and Physical Security Committee to form the Biosurety Board (BSB). This committee advises and informs the Institute on issues of biosurety and safeguarding BSATs, and continually monitors activities of the Biosurety Program for full compliance with all regulations and guidelines.
3. Maintained AFIP's Biological Personnel Reliability Program (BPRP) IAW AR 50-1 to ensure that all personnel meet all reliability and security checks before accessing BSATs. Personnel reliability is assure through the continuing evaluation process.
4. Assured AFIP's import/transfer permit program for BSATs continued to meet all regulations and guidelines set forth by the USDA and the CDC.
5. Passed a rigorous US Army Medical Command Surety Management Review (SMR) and conducted 2 complex internal and Post-wide exercises in accordance with the Biological Accident and Incident Response plan



Craig T. Mallak, CAPT, MC, USN
Armed Forces Medical Examiner
Date of Appointment – 12 June 2002

THE ARMED FORCES MEDICAL EXAMINER SYSTEM (AFMES)

MISSION

The department is primarily responsible for multidisciplinary forensic (medicolegal) investigations of unnatural or violent deaths due to known or suspected accidents, homicide, suicide, or undetermined means. In these cases, the AFMES must establish positive identity by scientific means, determine the cause and manner of death, and certify the death. This responsibility normally applies to:

1. Members of the Armed Forces on active duty or on active duty for training.
2. Civilians, including dependents of military members, whose deaths come under exclusive Federal jurisdiction.

Deaths to be investigated include, but are not limited to, the following categories:

- a. Unnatural or violent deaths from known or suspected accidents, homicide, suicide, or undetermined means.
- b. Deaths related to the occupation or employment of the deceased and deaths of individuals enrolled in the Personnel Reliability Program.
- c. Deaths related to vehicular, aircraft, or vessel accidents.
- d. Sudden and unexpected deaths in which the cause of death is not readily apparent.
- e. Deaths potentially related to diseases that might constitute a threat to the public health.
- f. Deaths occurring in an individual who is in the custody of law enforcement officials.
- g. When the commander of a Military Medical Treatment Facility (MMTF) where the death occurred or the decedent's commander in the grade of O-4 or higher notifies the AFMES that a medico-legal investigation on a military member is necessary for reasons of U.S. national security or for the protection of the military community.

The department reviews cases in consultation and conducts on-site medicolegal investigations, providing consultative as well as diagnostic services to the Department of Defense and other federal and nonfederal agencies. In addition, when requested and approved by higher authority, these services may be extended to foreign governments.

IMPACT

The six divisions of the Medical Examiners System, Operations, Education and Research, Special Investigations, DNA, Toxicology, and Mortality Surveillance, successfully carried out their mission that encompassed an unprecedented workload and challenges. The entire staff is justifiably proud of their accomplishments in fully accounting for those who have died while serving the United States. Just as important, the System has made significant contributions to the ongoing efforts to make the US service member of today and tomorrow safer and more effective on the battlefield and in garrison. Data gathered and research undertaken has had a direct impact on medical care and the design of the next generation of personal protective equipment. The Mortality Surveillance Division continued to expand in recognition with the vital information they provide to all levels of the Department of Defense and federal Government. The motto of this Division, "honoring the dead, protecting the living," continues to be

guiding principle for the entire medical examiner system.

ORGANIZATION

The Armed Forces Medical Examiner (AFMES) performs the executive functions of the AFMES. Administrative and fiscal functions are provided as well as oversight of the six OAFME divisions, and regional and associate medical examiner functions and responsibilities under the AFMES.

- a. **Medicolegal Investigations and Operations (OPS)** – Edward A. Reedy, CDR, MC, USN (SWMDO). This division is responsible for day-to-day AFMES Death Investigation operations to support worldwide forensic consultations and on-site investigations, including aircraft accidents.
- b. **Education and Research** – Ladd Tremaine, LTC, MC, USA. This division coordinates and facilitates all departmental education and research efforts. This includes fellowship and residency programs sponsored by military and civilian education institutions.
- c. **Special Investigations** – William C. Rodriguez III, PhD and Major Laura Regan, USAF, PhD. This division is responsible for anthropological investigation and consultation for the AFMES. It also maintains the Trace Materials Analysis Laboratory for the purposes of aiding the AFMES in identification of materials associated with medicolegal investigations.
- d. **Forensic Toxicology** – Marilyn Past CAPT, MSC, USN. This division provides toxicology laboratory testing and consultation for AFMES investigations and for the Department of Defense Drug-testing Quality Assurance Program. It also provides education and research for this discipline. The division is organized into four branches: the DoD Drug Testing Branch; the Forensic Toxicology Branch; the Research and Education Branch; and the Quality Assurance Branch.
- e. **Department of Defense DNA Registry** – Louis Finelli, LTC, USA, MC. This division encompasses the Armed Forces DNA Identification Laboratory (AFDIL), which is responsible for DNA-based identification of human remains for the Office of the Armed Forces Medical Examiner, and for performing consultation, education, and research in the area of forensic DNA analyses. The division also maintains the Armed Forces Repository of Specimen Samples for the Identification of Remains for the Department of Defense.
- f. **Mortality Surveillance Division** – Joyce Lapa, CAPT, MC, USN of the Office of the Armed Forces Medical Examiner directs this division. The primary goal of the DoD Mortality Surveillance Division (MSD) is to perform active surveillance to monitor all Active Duty deaths. Active surveillance is necessary to quickly identify those deaths that require autopsy by the AFMES, those that could require a public health response or those that could be the result of a bio-terrorist act. If a death has an infectious etiology, the MSD will take timely and appropriate steps to ensure that the agent or agents responsible are identified. As information is collected, it is stored in the Medical Mortality Registry for analysis and reporting of medical cause-specific mortality data, to include trends. The Division has also had an operational role in tracking and trending OIF related deaths, GWOT workload and autopsy specimen identifications. Finally, the Division produces Death Certificates for all fatalities autopsied by AFMES staff at Dover AFB.

STAFF

Medical Staff:

- Craig T. Mallak, CAPT, MC, USN, Armed Forces Medical Examiner
- Stephen L. Robinson, CAPT, MC, USN, Deputy Medical Examiner
- Abubakr Marzouk, Col, USAF, MC, FS, Deputy Medical Examiner
- Timothy Monaghan, CDR, MC, USN, Deputy Medical Examiner
- Terrill Tops, CPT, USAF, MC, Deputy Medical Examiner
- Edward Mazuchowski, MAJ, USAF, MC, Deputy Medical Examiner
- Ladd Tremaine, LTC, USA, MC, Deputy Medical Examiner
- Mark Shelly, LCDR, MC, USN, Deputy Medical Examiner
- Philip Berran, MAJ, USA, MC, Deputy Medical Examiner
- Carol Solomon, CDR, MC, USN, Deputy Medical Examiner
- Susan L. Hanshaw, LtCol, USAFR, NC, Forensic Nurse Investigator
- Louis N. Finelli, LTC, USA, MC, Chief Deputy
- (A) Joyce A. Lapa, CAPT, MC, USN, Deputy Mortality Surveillance
- (D) Lisa Pearce, CDR, MSC, USN, Deputy Mortality Surveillance Medical Examiner, DoD DNA Registry
- Dzuy T. Nguyen, Maj, USAF, MC, Associate Medical Examiner

- (A) Sean A. Swiatkowski, LCDR, MC, USN, Resident/Fellow Medical Examiner
- (D) Michael E. Smith, LTC, USA, MC, Regional Medical Examiner (Ft. Gordon, GA)
 - Elizabeth Rouse, Lt-Col, USAF/FS, MC, Regional Medical Examiner (USUHS, MD)
 - Eric Berg, COL, USA, MC, Regional Medical Examiner (Fort Campbell, KY)
 - James Feig, Lt-Col, USAF, MC, Regional Medical Examiner (San Antonio)
- (A) Scott Luzi, CDR, MC, USN, Regional Medical Examiner (Okinawa)
- (D) James Caruso, CAPT, MC, USN, Regional Medical Examiner (Okinawa)
 - Steven Campman, LtCol, USAFR, MC, Reserve Regional Medical Examiner (West Coast)
 - Donna Stewart, LtCol, KYANG, MC, Reserve Regional Medical Examiner (Midwest)
 - Gerald Liuzza, LTC, USAR, MC, Reserve Regional (Southwest)
 - Kent Harshbarger, LTC, USAR, MC, Reserve Regional (Midwest)
 - Jerry Hodge, CAPT, MC, USN, Regional

Scientific Staff:

- William C. Rodriguez, III, PhD, Chief Deputy Medical Examiner, Special Investigations,
Forensic Anthropology, Distinguished Scientist
- Laura Regan, MAJ, USAF, PhD, Chief Deputy Forensic Anthropologist

Administrative Staff:

- (D) Mark Vojtecky, CIV, Administrator
 - Janet D. Clements, SMSGT, USAF, Administrative Superintendent
 - Gina L. Morosky, LT, USN, Operations Officer
 - Robert Veasey, ABMLDI/Chief of Operational Investigations
 - Shawn Christian, SA, USA, CID
 - Jean Marie Sentell, SA, NCIS
 - Fred Upchurch, ABMLDI/Operation Specialist
- (A) Christina Olivarez, ABMLDI/Operations Specialist
- (D) Penny Rodriguez, Operation Specialist
 - Elizabeth Fuqua, Executive Administrator Assistant
- (A) Jeremy Ramlagan, Administrative Assistant, (ARP)
 - Yvonne Rodgers, Secretary
- (A) Veronica Hardy, Administrative Assistant, Anteon
 - Monique Williams, Administrative Assistant, Anteon
- (D) Richard Rosser, MC1, USN, Chief Forensic Photographer
- (D) Michelle Papineau, HM2, USN, Forensic Photographer
 - Michele Lecarda, TSgt, USAF, Forensic Photographer
- (D) William Ramsey, MC2, USN, Forensic Photographer
- (A) Michael Cole, MC2, USN, Forensic Photographer
 - Paul Mason, HM2, USN, Forensic Photographer
- (A) Homer Tabeta, HM2, USN, Forensic Photographer
 - Clifford Bernard, SSgt, USAF, Histology Tech
 - Denise Negron, HM2, USN, Histology Tech

DIAGNOSTIC CONSULTATION

<i>Cases</i>	<i>Completed</i>
Military	647
Federal	12
Civilian	10
Interdepartmental	54
Total	723

DEPLOYMENTS:

AFMES teams deployed to 319 medicolegal missions. On-site scene investigations were conducted in all of these deployments.

List of Non OIF/OEF Deployments:

1. Jan 02, 2008: Landstuhl, Germany, Dr. Ingwersen
2. Jan 02, 2008: Landstuhl, Germany, Dr. Ingwersen
3. Jan 02, 2008: Landstuhl, Germany, Dr. Ingwersen
4. Jan 02, 2008: Brooke AMC, Ft. Sam Houston, Dr. Kim
5. Jan 03, 2008: Jacksonville, FL, Dr. Berran

6. Jan 05, 2008: WRAMC, Washington DC, Dr. Tops
7. Jan 05, 2008: Landstuhl, Germany, Dr. Ingwersen
8. Jan 05, 2008: Landstuhl, Germany, Dr. Ingwersen
9. Jan 09, 2008: Okinawa, Japan, Dr. Caruso
10. Jan 10, 2008: Landstuhl, Germany, Dr. Ingwersen
11. Jan 11, 2008: Brooke AMC, Ft. Sam Houston, Dr. Kim
12. Jan 11, 2008: Ft. Bragg, NC, Dr. Shelly
13. Jan 14, 2008: San Diego, CA, Dr. Campman
14. Jan 15, 2008: Korea, Dr. Caruso
15. Jan 15, 2008: Other State, Dr. Tremaine
16. Jan 18, 2008: Okinawa, Japan, Dr. Caruso
17. Jan 22, 2008: Ft. Benning, GA, Dr. Smith
18. Jan 22, 2008: Portsmouth, VA, Dr. Stabley
19. Jan 22, 2008: San Diego, CA, Dr. Campman
20. Jan 23, 2008: San Antonio, TX, Dr. Feig
21. Jan 24, 2008: Ft. Bragg, NC, Dr. Tremaine
22. Jan 24, 2008: Ft. Benning, GA, Dr. Marzouk
23. Jan 24, 2008: Camp Lejeune, NC, Dr. Luzi
24. Jan 25, 2008: Camp Lejeune, NC, Dr. Luzi
25. Jan 26, 2008: Ft. Stewart, GA, Dr. Nguyen
26. Jan 28, 2008: Brooke AMC, Ft. Sam Houston, Dr. Kim
27. Jan 28, 2008: San Diego, CA, Dr. Campman
28. Jan 28, 2008: NNMC Bethesda, MD, Dr. Tops
29. Jan 29, 2008: Camp Lejeune, NC, Dr. Monaghan
30. Jan 29, 2008: Tripler AMC, Hawaii, Dr. Berran
31. Jan 29, 2008: Augusta, MA, Dr. Mazuchowski
32. Jan 29, 2008: NAS Sigonella, IT, Dr. Labovich
33. Jan 29, 2008: NAS Sigonella, IT, Dr. Labovich
34. Jan 29, 2008: Landstuhl, Germany, Dr. Short
35. Jan 30, 2008: NNMC Bethesda, MD, Dr. Tops
36. Jan 31, 2008: Camp Lejeune, NC, Dr. Monaghan
37. Feb 02, 2008: NAS, Sigonella, IT, Dr. Robinson
38. Feb 04, 2008: Ft. Carson, CO, Dr. Luzi
39. Feb 05, 2008: Elmendorf AFB, AK, Dr. Solomon
40. Feb 06, 2008: Landstuhl, Germany, Dr. Short
41. Feb 06, 2008: Landstuhl, Germany, Dr. Culton
42. Feb 06, 2008: Landstuhl, Germany, Dr. O'Connell
43. Feb 08, 2008: Ft. Benning, GA, Dr. Tops
44. Feb 08, 2008: Great Lakes, IL, Dr. Reedy
45. Feb 12, 2008: San Diego, CA, Dr. Campman
46. Feb 14, 2008: Ft. Polk, LA, Dr. Shelly
47. Feb 14, 2008: Ft. Lewis, WA, Dr. Tremaine
48. Feb 15, 2008: Ft. Stewart, GA, Dr. Kendelhardt
49. Feb 19, 2008: Portsmouth, VA, Dr. Stabley
50. Feb 20, 2008: San Antonio, TX, Dr. Feig
51. Feb 21, 2008: Eglin AFB, FL, Dr. Mazuchowski
52. Feb 25, 2008: Vicenza, IT, Dr. Labovich
53. Feb 26, 2008: Non-Dover, NOS, Dr. Labovich
54. Feb 26, 2008: Bethesda, MD, Dr. Rouse
55. Feb 26, 2008: FT. Riley, KS, Dr. Nguyen
56. Feb 27, 2008: Naples NMC, IT, Dr. Solomon
57. Feb 28, 2008: Okinawa, Japan, Dr. Caruso
58. Feb 28, 2008: Okinawa, Japan, Dr. Caruso
59. Feb 28, 2008: San Diego, CA, Dr. Campman
60. Mar 01, 2008: Andrews AFB, MD, Dr. Tops
61. Mar 03, 2008: Ft. Bragg, NC, Dr. Schaber
62. Mar 04, 2008: Ft. Bragg, NC, Dr. Schaber

63. Mar 05, 2008: Landstuhl, Germany, Dr. Labovich
64. Mar 06, 2008: Ft. Stewart, GA, Dr. Smith
65. Mar 08, 2008: Ft. Lewis, WA, Dr. Uribe
66. Mar 08, 2008: Other State, Dr. Feig
67. Mar 09, 2008: Ft. Bliss, TX, Dr. Reedy
68. Mar 10, 2008: Camp Lejeune, NC, Dr. Monaghan
69. Mar 11, 2008: Camp Lejeune, NC, Dr. Monaghan
70. Mar 11, 2008: Okinawa, Japan, Dr. Caruso
71. Mar 12, 2008: William Beaumont, TX, Dr. Robinson
72. Mar 13, 2008: San Antonio, TX, Dr. Feig
73. Mar 16, 2008: Pensacola NAS, Dr. Hodge
74. Mar 16, 2008: Pensacola NAS, Dr. Mazuchowski
75. Mar 17, 2008: Ft. Lewis, WA, Dr. Uribe
76. Mar 17, 2008: Landstuhl, Germany, Dr. Short
77. Mar 17, 2008: Ft. Campbell, KY, Dr. Berg
78. Mar 17, 2008: Ft. Riley, KS, Dr. Shelly
79. Mar 17, 2008: San Antonio, TX, Dr. Marzouk
80. Mar 18, 2008: Walter Reed AMC, DC, Dr. Monaghan
81. Mar 18, 2008: Little Rock, AR, Dr. Nguyen
82. Mar 19, 2008: Ft. Leonard Wood, MO, Dr. Berg
83. Mar 22, 2008: Ft. Lewis, WA, Dr. Uribe
84. Mar 22, 2008: Ft. Gordon, GA, Dr. Lemmon
85. Mar 24, 2008: Okinawa, Japan, Dr. Caruso
86. Mar 25, 2008: Ft. Lewis, WA, Dr. Tremaine
87. Mar 26, 2008: Camp Lejeune, NC, Dr. Luzi
88. Mar 27, 2008: Ft Bragg, NC, Dr. Luzi
89. Apr 02, 2008: Ft Riley, KS, Dr. Tremaine
90. Apr 02, 2008: Landstuhl, Germany, Dr. Reedy
91. Apr 02, 2008: San Diego, CA, Dr. Campman
92. Apr 03, 2008: Warner Robins, GA, Dr. Berran
93. Apr 04, 2008: San Antonio, TX, Dr. Fieg
94. Apr 04, 2008: Other State, Dr. Reedy
95. Apr 05, 2008: Camp Lejeune, NC, Dr. Monaghan
96. Apr 07, 2008: Camp Lejeune, NC, Dr. Monaghan
97. Apr 11, 2008: Ft. Polk, LA, Dr. Solomon
98. Apr 11, 2008: Tripler AMC, HI, Dr. Belnap
99. Apr 17, 2008: Landstuhl, Germany, Dr. Caruso
100. Apr 18, 2008: Ft. Rucker, AL, Dr. Berg
101. Apr 18, 2008: Portsmouth, VA, Dr. Stabley
102. Apr 18, 2008: Ft. Sill, OK, Dr. Feig
103. Apr 22, 2008: Ft. Bliss, TX, Dr. Robinson
104. Apr 23, 2008: Ft. Leonard Wood, MO, Dr. Hause
105. Apr 23, 2008: Rockville, MD
106. Apr 24, 2008: Other State, Dr. Tops
107. Apr 25, 2008: Other State, Dr. Tops
108. May 02, 2008: Ft. Riley, KS, Dr. Solomon
109. May 02, 2008: Ft. Sill, OK, Dr. Mazuchowski
110. May 02, 2008: Ft. Sill, OK, Dr. Feig
111. May 04, 2008: Ft. Bragg, NC, Dr. Berran
112. May 06, 2008: Ft. Bragg, NC, Dr. Shelly
113. May 07, 2008: Elmendorf AFB, AK, Dr. Marzouk
114. May 08, 2008: Great Lakes, IL, Dr. Tremaine
115. May 08, 2008: Ft. Belvoir, VA, Dr. Shelly
116. May 09, 2008: Ft. Campbell, KY, Dr. Berg
117. May 09, 2008: Ft. Benning, GA, Dr. Winecoff
118. May 09, 2008: Portsmouth, VA, Dr. Stabley
119. May 09, 2008: San Diego, CA, Dr. Nguyen

120. May 12, 2008: Camp Lejeune, NC, Dr. Monaghan
121. May 14, 2008: Ft. Rucker, AL, DR. Berg
122. May 14, 2008: Ft. Benning, GA, Dr. Mazuchowski
123. May 14, 2008: Ft. Stewart, GA, Dr. Berran
124. May 16, 2008: Okinawa, Japan, Dr. Mohtashamian
125. May 17, 2008: Ft. Bragg, NC, Dr. Tremaine
126. May 20, 2008: Ft. Benning, GA, Dr. Robinson
127. May 20, 2008: Other State, Dr. Tremaine
128. May 22, 2008: San Diego, CA, Dr. Solomon
129. May 23, 2008: Ft. Bliss, TX, Dr. Matlock
130. May 24, 2008: William Beaumont, Dr. Tops
131. May 27, 2008: Ft. Lewis, WA, Dr. Uribe
132. May 28, 2008: Eglin AFB, FL, Dr. Tremaine
133. May 28, 2008: Ft. Stewart, GA, Dr. Kendelhardt
134. Jun 01, 2008: Ft. Bragg, NC, Dr. Monaghan
135. Jun 02, 2008: Madigan AMC, WA, Dr. Tremaine
136. Jun 03, 2008: San Diego, CA, Dr. Shelly
137. Jun 03, 2008: San Diego, CA, Dr. Shelly
138. Jun 03, 2008: Ft. Polk, LA, Dr. Robinson
139. Jun 04, 2008: Okinawa, JA, Dr. Caruso
140. Jun 05, 2008: Elmendorf AFB, AK, Dr. Trummel
141. Jun 05, 2008: Elmendorf AFB, AK, Dr. Trummel
142. Jun 08, 2008: Yosuka Japan, Dr. Caruso
143. Jun 09, 2008: Rockville MD, Dr. Regan
144. Jun 10, 2008: San Diego, CA, Dr. Campman
145. Jun 11, 2008: West Point, NY, Dr. Solomon
146. Jun 11, 2008: Ft. Bragg, NC, Dr. Monaghan
147. Jun 11, 2008: Okinawa, Japan, Dr. Caruso
148. Jun 11, 2008: Patrick AFB, FL, Dr. Nguyen
149. Jun 11, 2008: Brooke AMC, TX, Dr. Kim
150. Jun 11, 2008: Walter Reed AMC, DC, Dr. Reedy
151. Jun 12, 2008: Bethesda, MD, Dr. Rouse
152. Jun 16, 2008: Lackland AFB, Dr. Feig
153. Jun 18, 2008: Ft. Gordon, GA, Dr. Tops
154. Jun 20, 2008: Camp Lejeune, NC, Dr. Monaghan
155. Jun 22, 2008: Walter Reed AMC, DC, Dr. Solomon
156. Jun 22, 2008: Great Lakes, IL, Dr. Reedy
157. Jun 23, 2008: Ft. Riley, KS, Dr. Berg
158. Jun 23, 2008: Okinawa, Japan, Dr. Luzi
159. Jun 24, 2008: Camp Lejeune, NC, Dr. Monaghan
160. Jun 25, 2008: Tripler AMC, HI, Dr. Belnap
161. Jun 25, 2008: Ft. Benning, GA, Dr. Tremaine
162. Jun 25, 2008: San Antonio, TX, Dr. Feig
163. Jun 27, 2008: Tripler AMC, HI, Dr. Belnap
164. Jun 29, 2008: Ft. Bliss, TX, Dr. Berran
165. Jun 29, 2008: Ft. Riley, KS, Dr. Tops
166. Jun 30, 2008: San Diego, CA, Dr. Campman
167. Jul 02, 2008: Camp Lejeune, NC, Dr. Monaghan
168. Jul 02, 2008: Ft. Sill, OK, Dr. Nguyen
169. Jul 03, 2008: Okinawa, Japan, Dr. Luzi
170. Jul 03, 2008: Wilford Hall, TX, Dr. Feig
171. Jul 03, 2008: NNMC, Bethesda, MD Dr. Rouse
172. Jul 04, 2008: Wilford Hall, TX, Dr. Feig
173. Jul 06, 2008: Civilian, Dr. Tremaine
174. Jul 06, 2008: Okinawa, Japan, Dr. Luzi
175. Jul 08, 2008: Ft. Bragg, NC, Dr. Mazuchowski
176. Jul 09, 2008: Other State, Dr. Solomon

177. Jul 09, 2008: Seoul, Korea, Dr. Luzi
178. Jul 12, 2008: Landstuhl, Germany, Dr. Culton
179. Jul 16, 2008: Landstuhl, Germany, Dr. Labovich
180. Jul 20, 2008: Okinawa, Japan, Dr. Luzi
181. Jul 21, 2008: Ft. Stewart, GA, Dr. Monaghan
182. Jul 21, 2008: Ft. Bragg, NC, Dr. Solomon
183. Jul 22, 2008: Other State, Dr. Nguyen
184. Jul 24, 2008: Guam, Dr. Tremaine
185. Jul 24, 2008: Guam, Dr. Tremaine
186. Jul 24, 2008: Guam, Dr. Tremaine
187. Jul 28, 2008: Ft. Leonard Wood, MO, Dr. Hause
188. Jul 28, 2008: Camp Lejeune, NC, Dr. Monaghan
189. Jul 28, 2008: Ft. Hood, TX, Dr. Feig
190. Jul 28, 2008: Ft. Hood, TX, Dr. Feig
191. Jul 29, 2008: WRAMC, DC, Dr. Reedy
192. Jul 29, 2008: Elmendorf, AK, Dr. Mazuchowski
193. Jul 30, 2008: Camp Lejeune, NC, Dr. Monaghan
194. Jul 30, 2008: San Antonio, TX, Dr. Feig
195. Jul 31, 2008: Nellis AFB, NV, Dr. Berran
196. Jul 31, 2008: NNMC Bethesda, MD, Dr. Shelly
197. Aug 04, 2008: Landstuhl, Germany
198. Aug 04, 2008: Ft. Campbell, KY, Dr. Berg
199. Aug 04, 2008: San Antonio, TX, Dr. Feig
200. Aug 05, 2008: Wilford Hall, TX, Dr. Feig
201. Aug 06, 2008: San Diego, CA, Dr. Campman
202. Aug 09, 2008: Korea, Dr. Luzi
203. Aug 10, 2008: Ft. Gordon, GA, Dr. Reedy
204. Aug 11, 2008: Ft. Carson, CO, Dr. Mazuchowski
205. Aug 11, 2008: Ft. Bragg, NC, Dr. Monaghan
206. Aug 12, 2008: Ft. Bragg, NC, Dr. Nguyen
207. Aug 13, 2008: Ft. Bragg, NC, Dr. Nguyen
208. Aug 13, 2008: Ft. Bragg, NC, Dr. Nguyen
209. Aug 14, 2008: Landstuhl, Germany
210. Aug 14, 2008: Ft. Hood, TX, Dr. Tops
211. Aug 16, 2008: Ft. Bliss, TX, Dr. Tremaine
212. Aug 19, 2008: Ft. Knox, KY, Dr. Tremaine
213. Aug 21, 2008: Ft. Benning, GA, Dr. Reedy
214. Aug 26, 2008: Ft. Stewart, GA, Dr. Shelly
215. Aug 27, 2008: Ft. Gordon, GA, Dr. Shelly
216. Sep 02, 2008: Walter Reed AMC, DC, Dr. Solomon
217. Sep 04, 2008: San Diego, CA, Dr. Campman
218. Sep 07, 2008: Ft. Bragg, NC, Dr. Monaghan
219. Sep 07, 2008: Tripler AMC, HI, Dr. Reedy
220. Sep 07, 2008: Tripler AMC, HI, Dr. Reedy
221. Sep 07, 2008: Tripler AMC, HI, Dr. Luzi
222. Sep 10, 2008: Okinawa, Japan, Dr. Luzi
223. Sep 12, 2008: Ft. Hood, TX, Dr. Nguyen
224. Sep 15, 2008: Ft. Bragg, NC, Dr. Marzouk
225. Sep 15, 2008: Ft. Stewart, GA, Dr. Marzouk
226. Sep 16, 2008: Ft. Bragg, NC, Dr. Marzouk
227. Sep 16, 2008: Ft. Bragg, NC, Dr. Marzouk
228. Sep 17, 2008: Ft. Polk, LA, Dr. Tremaine
229. Sep 17, 2008: San Diego, CA, Dr. Shelly
230. Sep 18, 2008: Jackson, MS, Dr. Tremaine
231. Sep 20, 2008: Ft. Benning, GA, Dr. Tops
232. Sep 23, 2008: Ft. Bragg, NC, Dr. Robinson
233. Sep 23, 2008: Ft. Bragg, NC, Dr. Robinson

- 234. Sep 23, 2008: Tripler, HI, Dr. Mallak
- 235. Sep 29, 2008: Seoul, Korea, Dr. Shelly
- 236. Sep 29, 2008: San Diego, CA, Dr. Campman
- 237. Sep 30, 2008: Wilford Hall, TX, Dr. Fieg
- 238. Oct 01, 2008: Ft. Riley, KS, Dr. Tops
- 239. Oct 03, 2008: San Diego, CA, Dr. Campman
- 240. Oct 03, 2008: Ft. Bragg, NC, Dr. Monaghan
- 241. Oct 05, 2008: Madigan AMC, WA, Dr. Solomon
- 242. Oct 05, 2008: Ft. Belvoir, VA, Dr. Nguyen
- 243. Oct 08, 2008: NNMC, Bethesda, MD, Dr. Rouse
- 244. Oct 10, 2008: Landstuhl, Germany, Dr. Tremaine
- 245. Oct 11, 2008: Ft. Hood, TX, Dr. Marzouk
- 246. Oct 13, 2008: Ft. Bragg, NC
- 247. Oct 15, 2008: Camp Lejeune, NC, Dr. Nguyen
- 248. Oct 17, 2008: Lackland AFB, TX, Dr. Feig
- 249. Oct 18, 2008: Camp Lejeune, NC, Dr. Tremaine
- 250. Oct 18, 2008: Ft. Lewis, WA, Dr. Marzouk
- 251. Oct 18, 2008: Ft. Lewis, WA, Dr. Marzouk
- 252. Oct 19, 2008: Ft. Benning, GA, Dr. Tremaine
- 253. Oct 20, 2008: Ft. Riley, KS, Dr. Berran
- 254. Oct 20, 2008: Walter Reed AMC, DC, Dr. Tops
- 255. Oct 21, 2008: Ft. Carson, CO, Dr. Tops
- 256. Oct 22, 2008: Landstuhl, Germany, Dr. Labovich
- 257. Oct 22, 2008: Landstuhl, Germany, Dr. Labovich
- 258. Oct 24, 2008: Ft. Sill, OK, Dr. Feig
- 259. Oct 24, 2008: Heidelberg Medical Center
- 260. Oct 24, 2008: NNMC Bethesda, MD, Dr. Nguyen
- 261. Oct 27, 2008: Landstuhl, Germany, Dr. Labovich
- 262. Oct 28, 2008: Ft. Bragg, NC, Dr. Tremaine
- 263. Oct 28, 2008: Ft. Benning, GA, Dr. Winecoff, III
- 264. Oct 29, 2008: Landstuhl, Germany, Dr. Labovich
- 265. Oct 29, 2008: NNMC Bethesda, MD, Dr. Reedy
- 266. Nov 01, 2008: Ft. Stewart, GA, Dr. Berran
- 267. Nov 03, 2008: Wilford Hall, TX, Dr. Feig
- 268. Nov 04, 2008: Okinawa, Japan, Dr. Luzi
- 269. Nov 04, 2008: Landstuhl, Germany, Dr. Labovich
- 270. Nov 05, 2008: Okinawa, Japan, Dr. Luzi
- 271. Nov 07, 2008: WRAMC, Washington DC, Dr. Shelly
- 272. Nov 07, 2008: Ft Bragg, NC, Dr. Nguyen
- 273. Nov 07, 2008: San Diego, CA, Dr. Marzouk
- 274. Nov 08, 2008: Elmendorf AFB, AK
- 275. Nov 11, 2008: Ft. Stewart, GA, Dr. Tops
- 276. Nov 12, 2008: San Diego, CA, Dr. Berran
- 277. Nov 12, 2008: Korea, Dr. Ro
- 278. Nov 13, 2008: Great Lakes, IL, Dr. Tops
- 279. Nov 13, 2008: Okinawa, Japan, Dr. Luzi
- 280. Nov 14, 2008: Camp Lejeune, NC, Dr. Monaghan
- 281. Nov 18, 2008: Okinawa, Japan, Dr. Luzi
- 282. Nov 18, 2008: Okinawa, Japan, Dr. Luzi
- 283. Nov 18, 2008: Ft. Lewis, Washington, Dr. Uribe
- 284. Nov 19, 2008: Ft. Carson, CO, Dr. Tremaine
- 285. Nov 19, 2008: Okinawa, Japan, Dr. Luzi
- 286. Nov 19, 2008: Ft. Hood, TX, Dr. Feig
- 287. Nov 20, 2008: NAS, Sigonella, Italy
- 288. Nov 22, 2008: San Antonio, TX, Dr. Feig
- 289. Nov 24, 2008: Ft. Lewis, Washington, Dr. Nguyen
- 290. Nov 26, 2008: Okinawa, Japan, Dr. Luzi

291. Nov 28, 2008: Ft. Lewis, Washington, Dr. Uribe
292. Dec 01, 2008: Elmendorf AFB, AK
293. Dec 01, 2008: Madigan AMC, Washington, Dr. Shelly
294. Dec 01, 2008: Landstuhl, Germany, Dr. Madelaire
295. Dec 02, 2008: NNMC Bethesda, MD, Dr. Berran
296. Dec 08, 2008: Camp Pendleton, CA, Dr. Campman
297. Dec 09, 2008: Ft. Gordon, GA, Dr. Swiatkowski
298. Dec 10, 2008: Walter Reed AMC, DC, Dr. Swiatkowski
299. Dec 11, 2008: Rockville, MD, Dr. Regan
300. Dec 12, 2008: Landstuhl, Germany, Dr. Short
301. Dec 12, 2008: Landstuhl, Germany, Dr. Short
302. Dec 12, 2008: Okinawa, Japan, Dr. Luzi
303. Dec 12, 2008: Madigan AMC, Washington, Dr. Nguyen
304. Dec 15, 2008: Portsmouth, VA, Dr. Tops
305. Dec 15, 2008: Ft. Stewart, GA, Dr. Berran
306. Dec 16, 2008: Korea, Dr. Luzi
307. Dec 18, 2008: Camp Lejeune, NC, Dr. Monaghan
308. Dec 18, 2008: Camp Lejeune, NC, Dr. Monaghan
309. Dec 19, 2008: Ft. Polk, LA
310. Dec 21, 2008: Ft. Stewart, GA, Dr. Marzouk
311. Dec 22, 2008: Ft. Carlson, CO, Dr. Marzouk
312. Dec 23, 2008: Korea, Dr. Luzi
313. Dec 23, 2008: Ft. Carlson, CO, Dr. Marzouk
314. Dec 23, 2008: Ft. Gordon, GA, Dr. Mazuchowski
315. Dec 24, 2008: Ft. Rucker, AL, Dr. Berg
316. Dec 30, 2008: Okinawa, Japan, Dr. Luzi
317. Dec 30, 2008: Wilford Hall, Texas, Dr. Feig
318. Dec 31, 2008: Camp Lejeune, NC, Dr. Reedy
319. Dec 31, 2008: Ft. Campbell, KY, Dr. Berg

Medical Examiners also deployed to Dover Air Force Base more than 200 days in 2008 to account for and investigate the deaths of over 574 service members who died while serving in support of Operation Iraqi Freedom and Operation Enduring Freedom.

The AFMES accessioned 1527 diagnostic consultation cases during calendar year (CY) 2008. The majority of the forensic pathology consultations were submitted by or in conjunction with the Military Services investigative agencies (NCIS, CID or OSI) as part of a medicolegal investigation. The remainder of the contributors was military pathologists and other federal agencies such as the Department of Justice, the FBI, and the Department of Labor.

Regional and Associate Medical Examiners:

AFME appointed (with the concurrence of the service surgeons general) Regional Medical Examiners (RME) and Associate Medical Examiners (AME), who continued to significantly expand our geographic scope. The RMEs and AMEs conducted over 200 medicolegal investigations this CY under the guidance of the AFMES, which is directly reflected in immense savings in, travel dollars and man-hours for the government. The RMEs and AMEs are located at Lackland AFB, Brook Army Medical Center, and Ft. Hood, TX; Ft. Campbell, KY; Eisenhower Army Medical Center, Fort Gordon, GA Bethesda, MD (USUHS); NMC Portsmouth, VA; NMC San Diego, CA; Tripler ARMC, HI; Landstuhl ARMC, Germany; and Camp Lester, Okinawa, Japan.

Recognitions, Honors Received:

The prestigious "Frank Brown Berry Prize" which recognizes major contributions to federal medicine was awarded to CDR Lisa Pearse, MC, USN, Chief Mortality Surveillance Division of the Armed Forces Medical Examiner System for her "timeless efforts at mortality analysis and preventive medicine to reduce military deaths." Dr. Pearse and her staff expanded the division tenfold and the resulting analysis have led to numerous DoD-level policy and equipment design changes in the field that have mitigated service members injuries and saved countless lives.

The College of American pathologists also recognized the office of the Armed Forces Medical Examiner with an Award citing the "dignity, honors, respect and professionalism" which is

carried out in their daily duties of conducting medicolegal investigation on the remains of fallen comrades.

Finally, the Armed Forces DNA Identification Laboratory received recognition for their work in identifying the remains of comrades from previous conflicts and wars. The award was presented by the executive committee of the National league of Families of Missing Persons of Southeast Asia.

Noteworthy Missions for 2008 include:

2008 proved to be a formidable year for the Armed Forces Medical Examiner System. The commitment made by the staff of the system to fully account for every military member who died while in service to their country required the staff to undertake over 700 death investigations. The AFMES continued to provide outstanding support of DoD and other federal agencies with regard to death investigations. During 2008, the autopsy examinations and written consultations were invaluable in promoting real-time force protection, especially for troops deployed to Operation Iraqi Freedom. In addition, several autopsy examinations and consultations were of great value in promoting aviation safety and administration of justice. Most noteworthy missions in 2008 included the following:

- The investigation of over 600 deaths from Operations Iraqi Freedom and Operations Enduring Freedom
- Continued collection and evaluation of helmets and ballistic vests from fatalities with feedback to the designers of protective equipment, vehicle designers, and combat units
- Provided over 1,000 reports to families as part of the ongoing support to military families who have lost a loved one while in service to the United States

Noteworthy Missions and Education for Special Investigations include:

- Led 8 skeletal recoveries: 2 CA; 4 MD; 1 MS; 1 VA
- Responded to 3 air mishaps (MS, TX, Guam)
- Processed over 450 body portions
- Consulted on over 100 skeletal cases
- Consulting forensic anthropologists for state of Maryland
- Leading member of Scientific Working Group for Forensic Anthropology (Dr Rodriguez)

Courses Offered:

1. The OAFME staff conducted the George Washington University Basic Forensic Pathology course in the Spring and Fall of 2008. The total attendance for this course was 44.
2. The OAFME staff conducted the Basic Forensic Pathology Course in the Fall of 2008. The total attendance for this course was 75.
3. Over 20 lectures at national-level/local courses & meetings Harvard Lecturers
4. March 2008: Forensic Anthropology at the 44rd Annual Forensic Dental Identification and Emerging Technologies course (AFIP, Rockville, MD)
5. June 2008: 21th Annual Forensic Anthropology course (AFIP, Ashburn, VA)
6. November 2008: Forensic Anthropology at the Principles of Forensic Pathology course (AFIP, Rockville MD)
7. Spring 2008: Forensic Anthropology & Postmortem Changes lectures for GWU Principles of Forensic Pathology course (Rockville, MD)
8. Fall 2008: Forensic Anthropology & Postmortem Changes lectures for GWU Principles of Forensic Pathology course (Rockville, MD)
9. December 2008: Forensic Anthropology & Skeletal Recoveries (to CID agents in Atlantic City NJ)

Trainees:

Three new fellows, Maj Ladd Tremaine, Maj Edward Mazuchowski and LCDR Mark Shelly, completed successfully the Forensic Pathology Fellowship program. The OAFME had no medical student in Forensic Pathology during CY 2007-2008.

Quality Assurance:

The Office of the Armed Forces Medical Examiner Quality Assurance program has maintained its quality peer review of 100% of the consultation cases. The forensic pathologists participate in the biannual College of American Pathologists surveys and anatomic pathology education programs in autopsy and forensic pathology.

Clinical and Faculty Appointments:

1. Consulting Associate Professor, Department of Anesthesiology, Duke University Medical

- Center, Durham, NC, CAPT J. Caruso.
2. Adjunct Faculty for the Uniformed Services University of the Health Sciences, Bethesda, MD, CDR J. Caruso.
 3. Adjunct Assistant Professor, Division of Physician Assistant Education, School of Allied Health Professions, University of Nebraska College of Medicine, COL E. Berg.
 4. Armed Forces Institute of Pathology, Course Director, Basic Forensic Pathology, CDR Scott Luzi
 5. George Washington University/AFIP Masters of Forensic Sciences Program, Adjunct Faculty and Course Director, Principles of Forensic Pathology, Maj Dzuy Nguyen
 6. George Washington University, Adjunct Professor, Dept. of Forensic Sciences, WC Rodriguez, III
 7. USUHS Clinical Instructor, CAPT Craig Mallak
 8. GWU Clinical Instructor, CAPT Craig Mallak

Presentations and Seminars:

The OAFME staff gave twenty-nine presentations, seminars and lectures during CY 2008.

1. February 2008: "Human Identification in a Post-9/11 World," American Association of Forensic Sciences, Dr. Reedy
2. February 2008: "Post Mortem Angiography in Support of Radiologic Assisted Autopsy," American Academy of Forensic Sciences, COL Harcke, Dr. Solomon
3. March 2008: "Global Surveillance for Infectious Disease Deaths in Active Duty United States Military Personnel," International Conference on Emerging Infectious Diseases, Dr. Robert Potter.
4. March 2008: "Sharp Force Injuries," GWU MSFS Program, Dr. Reedy
5. April 2008: "Blast Injuries," Society of Army Physician Assistants, Dr. Reedy
6. April 2008: Aircraft Mishap Investigation and Prevention Course, USAF School of Aerospace Medicine, Brooks AFB, TX, Dr. Marzouk
7. April 2008: Pediatric Forensics, CAPIT, US Army CID, LTC Ladd Tremaine
8. April 08: George Washington University, "Lectures on Natural Deaths in the Basic Forensic Pathology Course," Dr. Solomon
9. April 08: "Forensic Pathology for Fire Investigators," ATF Kansas City, Dr. Solomon
10. May 2008: Pediatric Forensics, CAPIT, US Army CID, LTC Ladd Tremaine
11. May 2008: Arizona Association of Emergency Responders, CAPT Craig Mallak
12. June 2008: Pediatric Forensics, CAPIT, US Army CID, LTC Ladd Tremaine
13. June 2008: "Ballistic Wounds," Washington DC Metro Police, Dr. Reedy
14. June 2008: "Ballistic Wounds," Washington DC Public Defenders, Dr. Reedy
15. June 2008: "Introduction to Forensic Pathology," National Student Leadership Conference, Dr. Reedy
16. July 2008: Veterans Administration Advanced Leadership course graduation, CAPT Craig Mallak
17. August 2008: Pediatric Forensics, CAPIT, US Army CID, LTC Ladd Tremaine
18. August 2008: National Student Leadership Conference on Forensic Science, University of Maryland, Dr. Solomon
19. August 2008: "Review of Forensic Pathology for NCIS Field Agents," FLETC, Dr. Solomon
20. September 2008: NAME conference, Suicidal Hanging with features of Judicial Hanging. LCDR Mark Shelly
21. September 2008: College of American Pathology Annual Meeting, CAPT Craig Mallak
22. October 2008: "Sharp Force Injuries" and "Animal Injuries," GWU MSFS Program, Dr. Reedy
23. November 2008: Infant Deaths and Investigations, AFIP conference, LTC Ladd Tremaine
24. December 2008: Childhood Deaths, NOVA Southeastern Forensic Pathology Conference, LTC Ladd Tremaine
25. December 2008: Mass casualties/the national Response Framework, NOVA Southeastern Forensic Pathology Conference, LTC Ladd Tremaine
26. December 2008: Dover Port Mortuary Operations, NOVA Southeastern Forensic Pathology Conference, LTC Ladd Tremaine
27. December 2008: CT assisted autopsies, NOVA Southeastern Forensic Pathology Conference, LTC Ladd Tremaine

28. December 2008: George Washington's Forensic Sciences Course, OAFME, Rockville, MD, Dr. Marzouk
29. December 08: Aircraft Mishap Investigation and Prevention Course, USAF School of Aerospace Medicine, Brooks AFB, TX, Dr. Marzouk

PUBLICATIONS OAFME

1. Mallak CT. Journal of Trauma-Injury Infection and Critical Care. Advances in Combat Casualty Care: Clinical Outcomes of War. 64(2) Supplements: S21-S27, February 2008.
2. Mallak CT. Quantitative analysis of the aminosteroidal non-depolarizing neuromuscular blocking agent vecuronium by LCESI-MS: a postmortem investigation. *Journal of Analytical Toxicology*. July/August 2008; Volume 32, Number 6: pp. 422-427, ISSN 0146-4760.

MORTALITY SURVEILLANCE DIVISION:

The AFMES Mortality Surveillance Division received five grants for research in various different areas of research:

- 110K for research into recovered Army armor and Army combat injury patterns from PEO Soldier.
- 125K for research into recovered Marine Corps armor and combat injury patterns from Marine Corps System Command.
- 140K for real-time surveillance of all DOD active duty deaths, with specimen collection of identification protocols for identification of infectious disease agents from DOD-Global Emerging Infectious System.
- 1.2M Congressional budget line item add-on to develop the Armed Forces Medical Examiner Tracking System (AFMETS).
- 1.1M For real time analysis of evidence from theater from "Joint Trauma Analysis for the Prevention of Injury in Combat" (JTAPIC) .

Research Projects:

1. Co-PI: Lapa JA, Reducing future combat deaths by analyzing deaths from the modern battlefield.
2. Co-PI: Lapa JA, Suicide in the United States military.
3. Co-PI: Solomon C, Incidence of focal myocarditis in autopsy specimens, with Dr. Burke.

Presentations:

1. February 08: "Forensic Radiology: Program Management" presented at the American Academy of Forensic Science (AAFS), Getz J.
2. February 08: Assessment of Living Siblings While Conducting a Comprehensive Child Death Investigation, presented at the American Academy of Forensic Sciences, Denver, CO, Williams J.
3. March 08: Branching Out in Nursing," presented at the Chesapeake Bay Society of PeriAnesthesia Nurses, Western MD District, Robinwood Medical Center, Altizer L.
4. March 08: Poster Presentation, Microbiological Agents as a Contributing Cause of Death in Wounded Service Members During Iraqi Freedom and Enduring Freedom. International Conference on Emerging Infectious Diseases, Atlanta, GA: Potter RN, Pearse LA, Mallak CT, Gaydos JC.
5. March 08: Global Surveillance for Infectious Disease Deaths in Active Duty United States Military Personnel. International Conference on Emerging Infectious Diseases, Atlanta, GA, Potter RN.
6. May 08: Suicide Reporting in DoD presented at the DoD Suicide Prevention Conference, San Diego CA, Pearse LA.
7. May 08: "Medical Legal Issues in Orthopedic Nursing," "Advanced Forensic Nursing," "The Definition of Doctorate in Nursing Practice," presented at the National Association of Orthopedic Nurses (NAON) Annual Congress, San Jose, CA, Alitzer L.
8. September 08: Key Note Speaker: Cat Scan Assisted Autopsy presented at the Florida Association of Medical Examiners (FAME) Conference, Getz J.
9. October 08 "Principles of Forensic Pathology" presented at the Armed Forces Medical Examiner System meeting (AFMES) Facility Workshop, Getz J.
11. October 08: Portfolio for Recognition, International Association of Forensic Nurses, Dallas, TX, Williams JP.
12. November 08: Mass Fatality Response in DoD, presented at the 2008 AMSUS meeting in

San Antonio, TX, Lapa JA.

13. December 08: Multidisciplinary Approach to Mass Fatality Incidents, presented at Flinders University, Adelaide, Australia, Williams JP.
14. December 08: Deficits in Disaster Preparedness, presented at Flinders University, Adelaide, Australia, Williams JP.

Publications Mortality Surveillance:

1. Alitzer L. All-terrain vehicle safety, *Orthopedic Nursing Journal*. 2008;27(4).
2. Alitzer L. Colles' fracture, *Orthopedic Nursing Journal*. 2008;27(2).
3. Alitzer L. Musculoskeletal system, Chapter 11. In: Hurst Reviews: *Pathophysiology Review*, McGraw Hill Publishers, 2008.
4. Harcke HT, Levy AD, Getz JM, Robinson SR. MDCT analysis of projectile injury in forensic investigation. *AJR Am J Roentgenol*. 2008; 190(2):W106-11. Review.
5. Kelly JF, Ritenour AE, et al. Injury severity and causes of death from Operation Iraqi Freedom and Operation Enduring Freedom: 2003-2004 versus 2006. *J Trauma*. 2008; 64(2 Suppl): S21-6; discussion S26-7.
6. Lapa JA, Sincock S, Ananthakrishnan M, et. al., Randomized clinical trial assessing the safety and immunogenicity of oral microencapsulated enterotoxaemia *Escherichia coli* surface antigen 6 with or without heat-labile enterotoxin with mutation R192G. *Clinical and Vaccine Immunology*. 2008(15); 1222-1228.

Faculty Appointments

1. CAPT Joyce A. Lapa, MD, Adjunct Assistant Professor, USUHS
2. CMDR Lisa A. Pearse, MD, Adjunct Assistant Professor, USUHS

Committees:

Lapa, Joyce A. CAPT

1. JTAPIC Partnership
2. Suicide Prevention and Risk Reduction Committee (SPARRC)
3. DoD Drug Abuse Ad Hoc Committee
4. Veteran's Administration (VA) Work Group for Suicide Prevention in the Veteran Population

Oetjen-Gerdes, Lynne

1. Prescription Drug Abuse Ad Hoc Committee – Health Affairs
2. Suicide Prevention and Risk Reduction Committee (SPARRC)

Williams, Joyce P

Chair, Doctors of Nursing Practice Inaugural Conference, Memphis, TN, Oct 08

Collaborators:

OAFME works closely with the Military Services Safety Centers in aircraft accident investigations, safety issues and educational endeavors for their respective aeromedical communities. We also provide aviation pathology training to the Canadian aeromedical community.

Committees:

The following staff held committee or board memberships and offices:

1. College of the American Pathologist, Forensic Pathology Committee, CT Mallak
2. Secretary, Path/Bio section of American Academy of Forensic Science, CT Mallak
3. NCC GMEC, OAFME Educational Committee, L Tremaine
4. Board of Governors, National Association of Medical Examiners, CT Mallak
5. Forensic Pathology Committee, College of American Pathologist, M Shelly
6. Association of Military Surgeons of the United States (AMSUS), S Hanshaw
7. N.A.M.E. Committee for Mass Fatalities, C Solomon

Editorial Boards:

1. *American Journal Forensic Medicine and Pathology*, CT Mallak
2. Invited Editor, *Journal of Forensic Sciences*, CT Mallak

Manuscripts Reviewed:

1. *American Journal of Forensic Medicine*
2. Duke University Medical Center

3. Naval Undersea Medical Institute
4. Undersea and Hyperbaric Medical Society
5. ASCP Check Samples, *Forensic Pathology* (Gunshot Wound of the Head with Brain Pulmonary Embolus)

Other Accomplishments:

Two OAFME staff received appointments as Professorial Lecturers for George Washington University. OAFME staff testified as expert witnesses in several homicide trials and assault cases. OAFME has had multiple media appearances including national television.

Consultants:

James Caruso

Associate Consulting Professor of Pathology and anesthesiology at Duke University Medical Center, Durham, NC

William Rodriguez

1. Chief consultant FBI Forensic Science Training Unit, and the FBI's Child Abduction and Serial Killer Unit.
2. Co-Director of the FBI's yearly Evidence Response Team–Field Course: Search and Recovery of Decomposed and Skeletonized Remains Evidence Response Team. FBI National Training Academy, Quantico, VA.

GOALS

The Office of the Armed forces Medical Examiner has several goals for the upcoming year, including:

1. Continue the full accounting mission for fallen service members in Iraq, Afghanistan, and elsewhere.
2. Continued implementation of AFMETS, a system wide data-tracking program.
3. Continued collaboration with NORTHCOM and Homeland Security to develop a national mass disaster response plan.
4. Assist with the transition and return of jurisdiction for investigation of deaths of Iraqi's to the National Medical Examiner System.
5. Formalization of a combat trauma registry with emphasis on body armor and other protector gear evaluation and improvement.
6. Begin the transition to a stand-alone organization as directed by the 2005 BRAC Law.
7. Begin the design process for the Medical Examiner Facility at Dover Air Force Base.



Louis N. Finelli, LTC, MC, USA
Chief Deputy Medical Examiner and Director,
Department of Defense DNA Registry
Date of Appointment—1 June 2006

DEPARTMENT OF DEFENSE DNA REGISTRY OFFICE OF THE ARMED FORCES MEDICAL EXAMINER

STAFF

Administration Section:

- Brion C. Smith, Deputy Director Forensic Services (DS)
- James J. Canik, Deputy Director Administration, Support & Facilities (ARP)
- Maria Nightingale, Administrative Officer (ARP)
- (D) Krystal N. Harris, Administrative Assistant (ARP)
- (A) Sabrina A. Gafner, Administrative Assistant (ARP)
- Richard Lewis, BS, RMT, QA/QC and Safety Officer (GS)
- Michael A. Fasano, BA, Laboratory Support Manager (ARP)
- Mauricio M. Rivera-Lopez, Inventory Manager (ARP)
- Lee Brandenburg, Inventory Management Specialist (ARP)

Information Technology Section:

- James P. Ross, Chief Information Officer (ARP)
- Aaron S. Waldner, Deputy Chief Information Officer (ARP)
- Peter Grey, Systems Ops Specialist (SD)
- Richard Coughlin, Network Administrator (FTI)
- Vinh Lam, Project Manager (FTI)
- Jon Norris, Software Developer (FTI)
- David Bergman, Software Developer (FTI)
- (D) Linda Huang, Software Developer (FTI)
- Eric Rubenstein, Software Developer (FTI)
- Phuong Phan, Software Developer (FTI)
- Iosif Gurevich, Software Developer (FTI)
- Umesh Sharma, Systems Admin (EDS)
- Mark Burack, Software Developer (FTI)
- (D) Edwin Molina, Helpdesk Technician (FTI)
- (A) Ren-Ju Hu, Sr. Software Developer (FTI)
- (A) John Meyers, Help Desk Technician (FTI)
- (A) Rodrigo Salazar, Technical Writer, QC (FTI)

Resource and Contract Management:

- (A) Lanelle Chisolm, Administrative Officer (GS)
- (A) Shairose Lalani, Supply System Analyst (GS)
- Marjorie Q. Bland, Program Coordinator (GS)

AFDIL Mitochondrial DNA Section:

- Suzanne M. Barritt-Ross, MS, Technical Leader (ARP)
- (D) Amanda Coute, MS, Assistant Technical Leader (ARP)
- Jacqueline Raskin-Burns, MS, Supervisory DNA Analyst (ARP)
- Mark J. Wadhams, MS, Assistant Technical Leader (ARP)
- Suni M. Edson, MS, Supervisory DNA Analyst (ARP)

- Chad M. Ernst, BS, Supervisory DNA Analyst (ARP)
- Christopher W. Los, MS, Assistant Technical Leader (ARP)
- Sarah L. Bettinger, MS, Supervisory DNA Analyst (ARP)
- Marina M. Bruner, BS, Casework Administrator (ARP)
- Kerriann K. Meyers, DNA Analyst (ARP)
- Jennie C. McMahon, BS, Supervisory DNA Analyst (ARP)
- Jennifer C. Kappeller, BS, DNA Analyst (ARP)
- Kerry L. Maynard, MFS, DNA Analyst (ARP)
- Jennifer E. O'Callaghan, MS, DNA Analyst (ARP)
- Darren E. Haliniewski, MS, DNA Analyst (ARP)
- Carla D. Paintner, MS, Supervisory DNA Analyst (ARP)
- R. Sean Oliver, MSc, DNA Analyst (ARP)
- Debra N. Jamison, MS, DNA Analyst (ARP)
- (D) Lindsay M. Harvey, BS, DNA Analyst (ARP)
- Jessica C. Spangler, BS, DNA Analyst (ARP)
- Adrienne R. Borges, BS, DNA Analyst (ARP)
- Christina M. Miller, BS, DNA Analyst (ARP)
- Michelle F. Ackerman, BS, DNA Analyst (ARP)
- Jamie B. Steinitz, BS, DNA Analyst (ARP)
- Chris T. Johnson, BS, DNA Technician (ARP)
- Sean E. Patterson, DNA Analyst (ARP)
- Suzanne Shunn, MS, DNA Analyst (ARP)
- Kristen Sundling, DNA Analyst (ARP)
- (D) Erica L. Chatfield, BS, DNA Technician (ARP)
- (D) Nathan M. Givens, DNA Technician (ARP)
- Sarah Linke, DNA Technician (ARP)
- Colleen Dunn, DNA Technician (ARP)
- (D) Jonathan Jarry, DNA Technician (ARP)
- Timothy Herbert, DNA Technician (ARP)
- Erin Bishop, DNA Analyst (ARP)
- Sarah Hager, DNA Technician (ARP)
- Jennifer Goss, DNA Analyst (ARP)
- Allison Fain, DNA Technician (ARP)
- Michael O'Rourke, DNA Technician (ARP)
- (D) Walter Graf, DNA Technician (ARP)
- (A) Brittany Box, DNA Technician (ARP)
- (A) Layla Shahmirzadi, Evidence Custodian/DNA Technician
- (A) Susan Belote, DNA Technician
- (A) Kyla Harris, BS, DNA Technician (ARP)
- (A) Megan Van Kirk, DNA Technician
- (A) Kristina Henry, DNA Technician

AFDIL Nuclear DNA Section:

- Demris A. Lee, MFS, Technical Leader (ARP)
- (A) Tracy Shelly Johnson, Assistant Technical Leader (ARP)
- Carna E. Meyer, MFS, Supervisory DNA Analyst (ARP)
- Miriam Narvaez, DNA Analyst (ARP)
- Lauren Stagnitto, BS, DNA Analyst (ARP)
- Courtney L. Vito, BS, DNA Analyst (ARP)
- Nicole Yee, BS, DNA Analyst (ARP)
- Diane Mueller, MS, Supervisory DNA Analyst (ARP)
- Jessica Stevens, DNA Analyst (ARP)
- Amber McManus, MS, DNA Analyst (ARP)
- Jeffrey Hickey, MFS, Supervisory DNA Analyst (ARP)
- Rayna Hebard, DNA Analyst (ARP)
- Rachel Capps, DNA Analyst (ARP)
- (A) Rachel Kinsel, DNA Technician (ARP)
- (A) Nathaniel T. Johnson, DNA Analyst (ARP)
- (A) Andrew R. Van Pelt, DNA Analyst (ARP)
- (A) Megan Estes, DNA Technician
- (A) Amanda Pender, Case Work Administrator (ARP)
- (D) Denise Otto, BS, Case Work Administrator (ARP)
- (D) Jennifer Prentice, DNA Technician (ARP)

AFDIL Validation Projects and Quality Control:

Naila Bhatari, MFS, QC DNA Technician (ARP)
Rachel Demara, QC DNA Technician (ARP)
Morgan Manning, QC DNA Technician (ARP)
Houda Kamoun, QC DNA Technician (ARP)
(A) Elizabeth Cox, QC DNA Analyst (ARP)
(A) Jessica Buckenberger, QC DNA Technician (ARP)
(D) Joan Bienvenue, PhD, QC/Validation Supervisor (ARP)
(D) Angela N. White, MS, QC Analyst (ARP)
(D) Holly Bofinger, BS, QC Technician (ARP)

AFDIL Laboratory Automation & Special Projects:

Theodore D. Anderson, MFS, Technical Leader (ARP)
Tracey L. Johnson, MSFS, Assistant Technical Leader (ARP)
Carey Karashowsky, DNA Analyst (ARP)
(A) LaKrishna Freeman, DNA Technician/Evidence Custodian (ARP)
Colin R. Steven, MS, Supervisory DNA Analyst (ARP)
Brad D. Ackermann, BS, DNA Analyst (ARP)
Julie A. Demarest, MSFS, Supervisory DNA Analyst (ARP)
Brandie N. Christian, MSFS, DNA Analyst (ARP)
(D) Nathaniel T. Johnson, BS, DNA Technician (ARP)
(D) Andrew R. Van Pelt, BS, DNA Technician (ARP)
Danyel Donovan, DNA Technician (ARP)
Melinda Hung, DNA Analyst (ARP)
Teresa Cheromcha, DNA Analyst (ARP)
(A) Jennifer Prentice, DNA Analyst (ARP)
(A) Morgan Falk, DNA Technician (ARP)
(A) Gurpreet Mann, DNA Technician (ARP)

AFDIL Training and Education:

(D) Faith Patterson, MS, Training & Education Manager (ARP)
Richon Tate, BS, Assistant Training & Education Manager (ARP)

AFDIL Research Section:

Michael D. Coble, PhD, Research Section Chief (ARP)
Jodi A. Irwin, MS, Research Scientist (ARP)
Rebecca E. Just, MFS, Supervisory Research Technologist (ARP)
Toni M. Diegoli, MFS, DNA Analyst (ARP)
Jessica L. Saunier, BS, DNA Analyst (ARP)
Kimberly A. Sturk, MFS, DNA Analyst (ARP)
Melissa K. Scheible, MFS, DNA Analyst (ARP)
Odile Loreille, PhD, Research Scientist, (ARP)
Erin Gorden, BS, DNA Analyst Assistant (ARP)
(D) Amanda Lehrmann, MFS, DNA Analyst Assistant (ARP)
(D) Kyla Harris, MFS, DNA Analyst Assistant (ARP)
(D) Joanne Lee, MFS, DNA Analyst Assistant (ARP)
(D) Rachel Kinsel, MFS, DNA Analyst Assistant (ARP)
(D) Morgan Falk, MFS, DNA Analyst Assistant (ARP)
(D) Brittany Box, MFS, DNA Analyst Assistant (ARP)
(A) Lisa Bedford, BS, DNA Analyst Assistant (ARP)
(A) Laura Dolezal, BS, DNA Analyst Assistant (ARP)
(A) Kimberly Jones, BS, DNA Analyst Assistant (ARP)
(A) Irene Liunoras, BS, DNA Analyst Assistant (ARP)
(A) Christopher May, BS, DNA Analyst Assistant (ARP)

Armed Forces Repository of Specimen Samples for the Identification of Remains (AFRSSIR)

Lawrence Drayton, MFS, Director of Operations (ARP)
Michelle Scott, Repository Supervisor (ARP)
Herbert Simms, Ordering Officer (GS)
Tonya Summers, Admin Assistant (ARP)
Marie Reese, Senior QC Technician (ARP)
Arvin Solis, Sr. Specimen Processor Team Leader (ARP)
Mariafe Vance, Sr. Specimen Processor Team Leader (ARP)
Diane Giampetroni, Sr. DNA Specimen Processor (ARP)
Gloria Lindmark, Sr. DNA Specimen Processor (ARP)

Michael Rhoades, QC Technician (ARP)
 Danielle Drayton, Administrative Assistant
 Rene Malones, Network Administrator (FTI)
 Roger Rudder, Network Administrator (EDS)
 (A) Martha Wilkerson, DNA Specimen Technician

MISSION

The Department of Defense DNA Registry (Forensic DNA Division) supports the ongoing missions of the Armed Forces Medical Examiner System (AFMES) and the Armed Forces Institute of Pathology (AFIP) through consultation, education, and research. This division is the global leader in human remains identification; forensic DNA analysis; mass-fatality incident management; bioinformatics development and scientific data management; as well as DNA reference specimen collection and storage. Furthermore, the DNA Registry provides mtDNA casework analysis, data management, and research support to the Joint POW/MIA Accounting Command's Central Identification Laboratory (JPAC-CIL) to assist in their mission of service member remains recovery and identification. A full 100% of DoD funded resources are applied in direct support of the DoD.

VISION

Dedicated people providing global leadership in consultation, education, and research in the fields of human remains identification; forensic DNA analytical services; bioinformatic analysis and management services; mass-fatality specimen collection and management services; and human reference specimen collection, cataloging, archival, and retrieval repository services.

VALUES

Quality: Uncompromising quality is what distinguishes us from other laboratory organizations. It is the foundation on which the DoD DNA Registry is built and we will not sacrifice it for the sake of expense or expediency. We do this by dedicating ourselves to the relentless pursuit of excellence in all services we provide.

Integrity: Trust, both among us and with colleagues external to our organization, is the cornerstone of our success. All of our processes, decisions, and actions are driven by personal and organizational integrity.

We are honest and forthright in all our dealings with those we provide services for and with each other. We are responsible participants in the forensic scientific community and we exemplify steadfast principles in honest discourse and production.

Innovation: We constantly seek innovative ways to enhance the services we provide. We support the creativity, courage, and persistence that transform ideas, thoughts, and dreams into knowledge and knowledge into insights and insights into action. We seek continuous learning through the adaptation of existing knowledge, and through experimentation and research, with the full understanding progress can be made through thoughtful trial and error.

Accountability: We accept full responsibility for our performance and acknowledge our accountability for the ultimate outcome of all we do. We strive for continuous improvement, and believe competence, reliability, and rigorous adherence to sound scientific principles and discipline are the keys to excellence. We look for others to do the same.

Collaboration: We believe in teamwork and the limitless possibilities of professional synergies. We, as an organization, achieve excellence by putting collective goals ahead of personal interests. We support and encourage open communication and meaningful participation in relevant scientific discourse among colleagues from various personal and professional backgrounds. We respect individual differences and we value the power of diversity when directed with unity of purpose.

Leadership: We strive to be the best at what we do. We embrace the foundations of personal leadership – courage, competence, confidence, and a passion for surpassing expectations. The Department of Defense DNA Registry fosters an environment of mutual respect, both professional and personal. One in which the contributions of each employee are held in the highest regard; where integrity, trust, and an uncompromising commitment to excellence and innovation guide our success in the mission of consultation, research, and education through the understanding and application of DNA technology.

DIAGNOSTIC CONSULTATIONS

Cases	Cases Accessioned	Cases Final Reported
CIV	192	134
IH	2,463	2,710
USA	801	1,102
USAF	18	6
USN	51	25
VA	1	0
OFA	2	7
Total	3,528	3,984

IMPACT

The Department of Defense (DoD) DNA Registry (the Registry) is a division of the Armed Forces Medical Examiner System (AFMES), and an operational element of the Armed Forces Institute of Pathology (AFIP). The Office of the Surgeon General (OTSG) provides Army Executive Agency. The Registry has two subordinate branches, the Armed Forces DNA Identification Laboratory (AFDIL) and the Armed Forces Repository of Specimen Samples for the Identification of Remains (AFRSSIR).

The DNA Registry is charged with the missions of DNA identification of human remains, information technology development, mass fatality management, and DNA reference specimen collection, archival, storage, and retrieval services for the Department of Defense.

The Joint POW/MIA Accounting Command (JPAC) is a field-operating agency of the United States Pacific Command (PACOM). JPAC is the lead organization in the search, recovery, and identification of US service members missing from prior military conflicts. Although JPAC meets most mission requirements with internal assets (forensic anthropology, odontology, data analysis, recovery teams), it has become relies the AFDIL to support the use of mitochondrial DNA (mtDNA). Currently more than 80% of JPAC CIL casework involves the use of various DNA technologies in the direct identification or exclusion of missing service members.

The DoD DNA Registry continued to support the Service Casualty Offices (SCOs) and the Defense Prisoner of War/Missing Personnel Office (DPMO) in support of family members of unaccounted for service members from all conflicts by participating in 10 monthly family updates and the Annual Government Briefings for Vietnam War families and Korea/Cold War families.

In conjunction with the other governmental and non-governmental organizations responsible for the personnel accounting mission, the DoD DNA Registry provided numerous briefings and tours for family members and presentations at monthly family member updates. In support of the Defense Prisoner of War Missing Personnel Office monthly family updates, AFDIL staff members collected 200 family reference specimens from eligible donors. At these monthly updates, over 3,000 family members were briefed on current recovery operations of missing American service members from the Vietnam War, Korean-Cold War, World War II, and World War I.

RESOURCE AND CONTRACT MANAGEMENT (ORCM)

The Office of Resource and Contract Management (ORCM) is comprised of a core group of United States Government employees. This office is responsible for all functions considered inherently governmental. These activities include processing and procurement of all requests for reagents, laboratory supplies, equipment, maintenance services, facility management, and Memoranda of Agreement (MOA) development, monitoring, and execution. Other activities included human resource (HR) functions, budget formulation, execution, monitoring and reporting, inventory and supply stock management, and equipment inventory and accountability. Additional activities include management of all contracts and acquisition of services to support AFDIL efforts.

In June 2008, the ORCM increased its personnel assets with the hiring of two new staff members. The Resources Manager’s position and the Supply Systems Analyst position were

filled, adding necessary depth to critical vacancies in the office. The addition of new staff gave the Armed Forces DNA Identification Laboratory increased competencies in governmental contracts, Budget Management, Inter Agency Agreements and Supply Management. Immediate impact was felt as the entire team tackled the myriad of challenging, and high tempo requirements for support.

Specific accomplishments during calendar year 2008:

- 1) Managed all facilities for the organization ensuring the leases, utilities, renovations, security, and maintenance were provided and/or accomplished.
- 2) Managed \$415,000 of maintenance and service contracts on laboratory equipment to include cold storage units, DNA thermal cyclers, DNA sequencers, water deionizer, and the calibration of pipettes. Responsible for the timely procurement of approximately five million dollars worth of laboratory supplies, reagents and consumables necessary for the continued mission of DNA identification of human remains.
- 3) Executed the application of direct cite funding on critical supply and equipment contracts which streamlined the obligation of Special Project funds and ensured sufficient quantities of supplies were available to support OPTEMPO. The contract structures and application of direct funding dramatically shortened delivery times and acquisition procurement lead times. In addition, the entire ORCA team was critical in the obligation of \$4.8M in equipment, supplies, and IT requirements during the 4th Qtr, FY 08.
- 4) Acquired, administered and managed several Mission Essential personnel support contracts proving technical laboratory staff, Scientific, Administrative & Managerial and Information Technology (IT) technology support for AFDIL.
- 5) The ORCM is responsible for oversight of the development, testing, and deployment of the DNA Registry Inventory Management Systems (DRIMS), a comprehensive module within the Laboratory Information Systems Application (LISA) operating system of the Laboratory Information Management System (LIMS). This program allows for the automated scheduling of laboratory replenishment, equipment failure notification, comprehensive manufacturer, supply, and distribution information collection, and other integrated inventory management functions.
- 6) Orchestrated the acquisition of new instrumentation which streamlines the processes of DNA extraction, amplification and reagent preparation. The first of these instruments, the Applied Biosystems 3730 Genetic Analyzer is used in DNA sequencing and fragment analysis. The instrument is equipped with an Automated Polymer Delivery System that enables one button operation from polymer delivery, sample injection to separation, detection, and data generation. The automated polymer delivery and easy-to-use wizards for instrument operation and maintenance facilitates faster turnaround time and increased productivity. With its high throughput analysis capacity, AFDIL will be able to process highly degraded human materials (as seen in contingency operations) in increased quantities, and with greater accuracy. The second instrument is the Biomek FXP, a robotics workstation able to extract multiple DNA samples, quantify the DNA obtained and then amplify those samples on the same platform.
- 7) Coordinated with internal IT Staff to design, develop, evaluate, and test a custom Budget and Contracts software database to manage all forms of government agreements, contracts, funding, and budget execution.

THE ARMED FORCES DNA IDENTIFICATION LABORATORY (AFDIL)

AFDIL Mitochondrial DNA (mtDNA) Section

The primary mission of AFDIL's Mitochondrial DNA Section is to support the Joint POW/MIA Accounting Command – Central Identification Laboratory (JPAC-CIL) to identify the remains of soldiers missing from past United States military conflicts, primarily those from the Korean War, Southeast Asia, and World War II. As an expansion into other missions, as well as support of this primary mission, the mtDNA Section has increased its collaborative efforts with the other AFDIL sections, to the benefit of all.

The mtDNA section has continued to work towards improving extraction techniques for ancient and degraded samples. In CY2008, AFDIL validated a protocol for the handling of whole teeth in house. Previously samples were cut by forensic dentists at JPAC-CIL and the powder was submitted to AFDIL for testing. Now we are able to prepare whole teeth within

the confines of a clean lab, thereby reducing the number of individuals handling these samples and decreasing the chances for contamination. In addition, teeth are now being processed using the 'demineralization' technique introduced by the Research Section in CY2006, increasing the number of teeth that can be successfully reported.

As in CY2007, the mtDNA Section continued to use the 'demineralization' technique for the extraction of DNA from bone samples. In CY2007, usage of this method had decreased the number of samples being reported as inconclusive from 26% in CY2006 to only 8%. In CY2008, AFDIL further decreased the number of samples reported as inconclusive to only 6%, by far the lowest inconclusive rate among laboratories processing 'ancient' remains. Because of our success with demineralization, JPAC-CIL has resubmitted samples from cases that were previously reported as inconclusive. We have been having great success with these resubmissions.

The case of CDR Ralph C. Bisz, USN is of particular note. Since 1991, over 25 samples have been submitted in an attempt to identify CDR Bisz who was shot down over North Vietnam on 4 August 1967. It was not until CY2008 and the implementation of demineralization, that CDR Bisz was identified and returned to his family. In CY2009, we are seeking to further improve this method by eliminating the usage of highly caustic chemicals in the DNA extraction protocol. This new method is currently being used by the Research Section, and we look forward to testing it on casework samples.

In support of the JPAC-CIL mission, the mtDNA Section processed, analyzed and reported 775 biological (skeletal) specimens in CY2008, a 7% decrease from CY2007. However, we processed and reported 2167 family references, a 377% increase from CY2007 and an elimination of the backlog of family references in-house. In CY2008, we received 923 new family references and we anticipate being able to maintain processing references as they are received due to the backlog elimination. We also generated 114 identification reports of unknown service members for JPAC-CIL in CY2008.

In addition to the mission with JPAC-CIL, CY2008 marked the second year of a Memorandum of Agreement (MOA) with the National Institutes of Justice (NIJ) for the processing of human remains for inclusion in the National Missing Persons DNA Database (NMPDD). We received only 47 samples towards our reporting goal of 84 samples in CY2008. However, in a collaborative effort with the Nuclear DNA Section of AFDIL, we reported 38 samples for mitochondrial DNA analysis and 42 samples for nuclear DNA analysis in CY2008. A MOA for CY2009 has already been approved and we anticipate a long-term partnership with NIJ for the NMPDD project.

The Mitochondrial DNA Section has also continued its collaborative efforts with other sections within AFDIL. It is with management assistance from the Automation Section that we were able to eliminate the backlog of family references. Their assistance, along with the availability of robotics, removed the processing bottleneck that we had previously experienced with the manual handling of biological (blood and saliva) specimens. In a remarkable collaboration with the Research Section, the mtDNA group assisted in the identification of the two missing Romanov children, the Tsarevich Alexei and one of his sisters, from a grave newly discovered in 2007. Together we also retested the remains of the rest of the Russian royal family originally tested in the early 1990's to support the mtDNA sequences and nuclear DNA profiles generated from the 'new' grave. A publication describing these results is already in press.

CY2008 was a very successful year for the mtDNA section. We continue to be at the forefront of new ideas for forensic DNA analysis. We focused on new techniques and skills in CY2008, and anticipate multiple publications and presentations in CY2009 that will only enhance our standing in the national and international scientific community. Interactions with our outside collaborators, JPAC-CIL and NIJ, have continued to strengthen and grow. Our day-to-day communications with outside scientists have provided us all with opportunities to improve upon our existing techniques and increase our collective rates of success. This can only serve to better our efforts to repatriate the remains of missing US service members to their families and a grateful nation.

AFDIL Nuclear DNA Section

Since the inception of the War in Iraq in 2003 until present day, the Nuclear DNA Section has managed a continuous influx of specimens for DNA analysis in support of identifying remains from Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF). At the conclusion of 2008, the Nuclear DNA Section processed over 2000 evidence and reference specimens successfully depleting their specimen processing backlog.

The Nuclear DNA Section expanded its autosomal Short Tandem Repeat (auSTR) capabilities by implementing two new STR multiplexes, the Applied Biosystems AmpFISTR Identifier and MiniFiler PCR amplification kits. The Identifier kit, like the Promega PowerPlex 16 kit, offers 15 auSTR loci and the sexing marker amelogenin in a single reaction. In view of the fact that the two kits utilize different primers the nuclear DNA section has been able to resolve inconclusive data due to primer binding site issues. Our laboratory is one of the few forensic DNA laboratories that have the capability to utilize both systems. The primary advantage of the MiniFiler kit is that it utilizes primers that closely flank the region of interest thereby reducing the amplicon size. As a result, the overall success rate for degraded samples has increased. The MiniFiler kit was instrumental in several cases from Iraq.

Personnel, who are absent from duty involuntarily, but the circumstances do not allow a definite determination of a missing or deceased status are designated Duty Status – Whereabouts Unknown (DUSTWUN). Between late March and early July of 2008, AFDIL worked to establish DNA identifications of nine DUSTWUN individuals missing from four separate incidents and recovered after durations ranging from 14 months to 4 years. Three of these individuals were active duty military personnel and six were security contractors. Four of the contractors were former military personnel, so references were readily available through the Armed Forces Repository of Specimen Samples for Identification of Remains (AFRSSIR) for seven of these DUSTWUNS. DNA analysis on the remains proved to be challenging due to the harshness of the environment. The bones received were stark white and almost appeared bleached, possibly due to the sun, the sand, or a combination thereof. Three of the 9 recovered DUSTWUNS were identified via conventional methods (fingerprint and/or dental comparison). The other 6 DUSTWUNS, AFDIL identified through a combination of STR (5 individuals) and mitochondrial DNA analysis (1 individual). Of the six identified, four sets of remains yielded no results or partial PP16 STR results. However, additional analysis of these four sets of remains yielded full DNA profiles with the MiniFiler PCR amplification kit leading to the identification of three of the missing Americans and ultimately returning them home to their loved ones.

The Nuclear DNA section also utilized the MiniFiler PCR amplification kit to assist the Office of the Chief Medical Examiner in Baltimore by positively identifying the remains of a missing woman. In February 2008, skeletal remains were discovered by a real estate agent in Emmitsburg, MD. The autopsy suggested the remains belonged to a female matching the description of a Hispanic woman missing since March 2007. The missing woman's husband and four children's bodies had been discovered in their Frederick home the previous year. Authorities believed the woman had fled home to her native country. Autopsy samples from the children and husband were submitted as reference samples in an attempt to identify the skeletal remains. This case was interesting in that the PP16 results were inconclusive at a number of loci due to degradation and bacterial DNA present in the bone samples. The MiniFiler kit was able to overcome these obstacles and generate results that strongly supported the identification through reverse maternity testing.

Our reputation of generating a quality work product from a variety of challenging specimens as well as mass disaster management has positioned AFDIL as a sought after training resource. AFDIL in coordination with the State Department hosted Iraqi scientists for approximately 6 weeks during the end of the summer of 2008. The scientists were trained by casework and quality control staff in nuclear DNA analytical methods. Topics included accreditation requirements, evidence collection, extraction, quantification, autosomal and Y STR amplification, detection, analysis and interpretation. This endeavor promoted a convivial working relationship with the scientist in Iraq as well as provided the Iraqis with a foundation for improved identification methods.

AFDIL Research Section

The Research Section consists of fifteen scientists – eight full-time and six part-time employees. In CY2008 the Research Section collaborated with a visiting scientist from Morocco. The section also mentored seven student interns from the George Washington University for the year.

In CY2008, the Research Section completed a two year, \$1.89M grant from the National Institutes of Justice (NIJ) to increase the size and quality of the current mtDNA database of US populations. The initial goal of the NIJ-funded research was to produce 7500 high quality control region sequences for the forensic community. In August of 2008, we finished the project with 8747 sequences – an increase of over 1200 sequences at no additional cost. The

improved mtDNA population database will increase the statistics for searching mtDNA profiles from JPAC-CIL samples.

In the last year we have also assisted the laboratory in completing an examination of room temperature storage of blood stain cards at the AFRSSIR. We conducted a number of experiments that showed no loss of DNA on blood stain cards stored at room temperature versus -20 degrees Celsius. This study led to a new policy in which blood stain cards will be stored at room temperature for the future. This change will save the US Government millions of dollars in energy costs.

CY2008 was also a very productive year for the section in resolving a number of high profile, historic cases. AFDIL was invited by the Russian Federation to participate in the identification of two sets of skeletal remains found near the site of the Romanov family. We were able to convincingly show that these remains were, in fact, the two missing Romanov children: Alexei and one of his sisters. We also participated in the identification of the unknown child from the R.M.S. Titanic. Finally, we also identified an individual who died in the crash of Northwest Airlines Flight 4422, a DC-3, which crashed in Alaska, 12 March 1948.

We have established and continue to foster a number of collaborations with several highly regarded organizations and individuals in the forensic community that share our goals. These include: the National Institute of Standards and Technology (NIST – John Butler); The Bureau of Alcohol, Tobacco and Firearms DNA Laboratory (ATF – Todd Bille); Institute of Legal Medicine at the University of Innsbruck (ILM – Walther Parson); The George Washington University (GWU – Daniele Podini); The European DNA Profiling Group (EDNAP); Antonio Salas (Instituto de Medicina Legal Universidad de Santiago de Compostela, Spain); and Claudio Bravi (Instituto Multidisciplinario de Biología Celular – IMBICE, Argentina).

Through our publications and presentations, the section has maintained a high profile within the U.S and internationally providing recognition for AFDIL as one of the world's most innovative forensic DNA laboratories.

Laboratory Automation Biometrics & Special Projects (LAB) Section

2008 proved to be a year of continued growth for the Laboratory Automation and Biometrics (LAB) Section at AFDIL. The Section underwent a personnel reorganization and expansion, designed to increase flexibility and enable the team to better respond to the ever-increasing demands for its services. The Section added several new positions bringing the total staff number up to 17. For the first time, the LAB Section has an Assistant Technical Leader, a Casework Administrator, and a full time Evidence Custodian.

In addition to the expansion of the Section, 2008 witnessed a significant milestone in the continued development of the section's primary DNA database, the enrollment of the 100,000th DNA profile. The LAB Section initiated a program to develop Y-chromosomal STR profiles from all samples received to date. As the database grows inside, so does its utility outside the organization. In response to the increased queries, the LAB Section successfully instituted a 24/7 recall schedule to provide immediate scientific staff response to client queries of the DNA database.

Notable validation projects performed during 2008 include reduced volume amplification reactions for both the PowerPlex 16 and AmpFISTR Yfiler STR kits, automated amplification setup using the Biomek FX, and automated STR typing on the TECAN Genesis. The successful implementation of these projects allows the LAB Section to maximize laboratory efficiency and generate the greatest amount of data in a cost effective manner.

Finally, the LAB Section continued to fulfill its advisory role in the development of field-deployable DNA technology and its leadership role in the strategic planning of human identification DNA testing in forensic science and biometrics.

The Armed Forces Repository of Specimen Samples for the Identification of Remains (Armed Forces Repository – AFRSSIR)

In 2008, the AFRSSIR accessioned 290,000 DNA reference specimens from 1,451 separate collection sites (Army – 143,269, Air Force – 41,221, Navy – 50,444, Marine Corps – 47,855, Coast Guard – 4,777, other – 2,434).

The Repository Supervisor conducted collection site inspections at 11 CONUS facilities to provide informational briefings and to evaluate collection procedures and compliance with applicable directives.

Accessioned DNA reference specimen inventory at the end of the year totaled 5,529,593. Total service members on file at the AFRSSIR represent 98% of total military population. In the past year, the repository processed 9 donor requests for destruction of donor DNA samples

and 28 requests for release of specimens. The repository released 804 DNA specimens to AFDIL for human remains identification.

The AFRSSIR and AFDIL study of DNA blood stain references, to determine if the yield of DNA would be affected by storing the samples as originally packaged but at climate controlled room temperature rather than storage at -20°C was concluded. The ambient temperature blood stains used as the control group in the study were from duplicate samples of service members that had been received since 1996 and stored at room temperature.

The results of the study demonstrated there is no statistically significant degradation in the quantity or quality of the DNA when stored at room temperature. The study, A Ten Year Study of DNA Blood References Collected on Untreated Filter Paper and Stored at Room Temperature, was presented at the 2008 American Academy of Forensic Sciences and the findings were accepted by the DNA scientific community. The DoD Oversight Committee, established at the recommendation of the Defense Science Board also reviewed the findings and supported the decision to store the AFRSSIR samples in vacuum sealed pouches at room temperature. Consequently, by direction of the Chief Deputy Medical Examiner and Director, DoD DNA Registry, effective 1 April 2008, newly accessioned DNA reference samples will be stored at room temperature. Current frozen DNA references will be transitioned to room temperature storage, as space becomes available in the repository.

Presentations:

1. January 2008: Fredericksburg, VA, SWGDAM Meeting, "AFDIL's Bone Extraction SOP," A Coute.
2. January 2008: Houston, TX, "DNA In The Accounting Process," Defense Prisoner of War Missing Personnel Family Update (Presentation and Family Reference Collections) JJ Canik, S Edson, C Miller, M Scheible.
3. January 2008: Madison, WI, PowerPlex®16 Workshop, "Validation Of A Low Copy Number Powerplex® 16 (LCN-PP16) Protocol For Use On Degraded Skeletal Remains," S Edson.
4. January 2008: Rockville, MD, Staff Seminar, Armed Forces DNA Identification Lab, Rockville, "Reference databases for mtDNA casework: Examples from Central Asia." (oral presentation) J Irwin.
5. January 2008: Rockville, MD, "DNA In The Accounting Process," Deputy Commanding General, US Special Operations Command (SOCOM), Ft Bragg, NC (Presentation and Tour) LTC L Finelli, BC Smith, JJ Canik.
6. February 2008: Atlanta, GA, "DNA In The Accounting Process," Defense Prisoner of War Missing Personnel Family Update (Presentation and Family Reference Collections) JJ Canik, J McMahon, D Haliniewski, E Chatfield.
7. February 2008: Washington, DC, 60th Annual Meeting, American Academy of Forensic Sciences. "A Study of DNA Blood References Collected on Untreated Filter Paper and Stored at Room Temperature." (oral presentation) MD Coble, K Sturk, C Vito, L Drayton, J Canik, L Finelli, D Boyer, T McMahon, D Lee.
8. February 2008: Washington, DC, 60th Annual Meeting, American Academy of Forensic Sciences. "Early diagenesis of bone and DNA preservation." (poster presentation) MME Jans, AJ Tyrrell, O Loreille, H Kars.
9. February 2008: Washington, DC, 60th Annual Meeting, American Academy of Forensic Sciences. "Species Identification of Degraded Bone Fragments Using the 12S rRNA Gene." (poster presentation) K Sturk, J Irwin.
10. February 2008: Washington, DC, 60th Annual Meeting, American Academy of Forensic Sciences – AFDIL/CIL Mixer. "The Impending Death of Phenol-Chloroform Extractions at AFDIL" (oral presentation) MD Coble, OM Loreille.
11. February 2008: Washington, DC, 60th Annual Meeting, American Academy of Forensic Sciences. "Development of Two Mini-X Chromosomal Short Tandem Repeat Multiplexes," (poster presentation) TM Diegoli, MD Coble.
12. February 2008: Washington, DC, 60th Annual Meeting, American Academy of Forensic Sciences DNA Workshop on qPCR. "qPCR at AFDIL: Our Experiences Quantitating mtDNA and More," (oral presentation) TM Diegoli.
13. February 2008: Innsbruck, Austria, EMPOP (European mtDNA Population Database) Workshop, "Investigation of point heteroplasmy in the mitochondrial control region: a synthesis of observations from nearly 5000 global population samples," (oral presentation) J Irwin, J Saunier, K Strouss, K Sturk, T Diegoli, W Parson, A Brandstätter, T Parsons.

14. March 2008: Portland, OR, "DNA In The Accounting Process," Defense Prisoner of War Missing Personnel Family Update (Presentation and Family Reference Collections). JJ Canik, C Paintner, J Jarry, T Herbert.
15. March 2008: Charlottesville, VA, "DNA In The Global War On Terrorism," Biometrics Enabled Intelligence Conference, National Ground Intelligence Center. L Finelli, TD Anderson.
16. March 2008: Rockville, MD, Staff Seminar, Armed Forces DNA Identification Laboratory; "Species Identification of Degraded Bone Fragments Using the 12S rRNA Gene." (oral presentation) K Sturk, J Irwin.
17. March 2008: Rockville, MD, Staff Seminar, Armed Forces DNA Identification Laboratory; "MiniFiler EDNAP and Concordance Studies," (oral presentation). K Sturk, R Just, J Saunier, J Irwin, MD Coble.
18. March 2008: Rockville, MD, "DNA In The Accounting Process," Industrial College of the Armed Forces, Biotechnology Group, Ft McNair, DC (Presentation and Tour). JJ Canik.
19. March 2008: Montgomery Village, MD, Montgomery Village Middle School, "Forensic DNA – 7th and 8th Grade Lecture," JE O'Callaghan, T Herbert.
20. April 2008: Gaithersburg, MD, Shady Grove Middle School 8th Grade Career Day, "Forensic DNA Analyst," JE O'Callaghan.
21. April 2008: Burtonsville, MD, Burtonsville Elementary School, "Forensics," M Ackerman and K Sundling.
22. April 2008: Hartford, CT, "DNA In The Accounting Process," Defense Prisoner of War Missing Personnel Family Update (Presentation and Family Reference Collections). JJ Canik, A Desnoyers, S Belote, K Maynard.
23. April 2008: Hampton, VA, The First Annual Technological Advances in Human Identification Meeting. "Research Update at AFDIL." (oral presentation) MD Coble.
24. April 2008: Orlando, FL, The International Society for Optical Engineering, Defense and Security Symposium. "Resolution of a challenging case using new tools at AFDIL." (oral presentation) MD Coble.
25. April 2008: Ekaterinburg, Russia, The Sverdlovsk Forensic Medicine Department. "An overview of miniSTRs and Y-STRs." (oral presentation) MD Coble.
26. May 2008: Ancona, Italy, DNA in Forensics 2008, "Pitfalls and Predicaments in the Generation of High-Quality Control Region Databases." (oral presentation) JA Irwin, MD Coble.
27. May 2008: Bethesda, MD, Mitochondrial Molecular Biology and Pathology Workshop at the National Institutes of Health, "Mitochondrial DNA SNPs in Evolution and Forensic Analysis." (oral presentation) MD Coble, K Sturk.
28. May 2008: Ancona, Italy, DNA in Forensics 2008 "Development of Two Mini-X Chromosomal Short Tandem Repeat Multiplexes." (oral presentation) TM Diegoli, MD Coble.
29. May 2008: Ancona, Italy, DNA in Forensics 2008 "Investigation of point heteroplasmy in the mitochondrial control region: a synthesis of observations from nearly 5000 global population samples." (oral presentation) J Irwin, J Saunier, K Strouss, K Sturk, T Diegoli, W Parson, A Brandstätter, T Parsons.
30. May 2008: Rockville, MD, Seminar for the Armed Forces DNA Identification Laboratory, "An Evaluation of Biomatrix SampleMatrix™ Technology for Use in the AFDIL Research." (oral presentation) MK Scheible, OM Loreille, MD Coble.
31. May 2008: Rockville, Maryland, Department of Defense Quality Assurance Oversight Committee for DNA Analysis. L Finelli, BC Smith.
32. May 2008: Rockville, MD, Twinbrook Elementary School 2nd-5th Grade Career Day, "Crime Scene Analysis," JE O'Callaghan.
33. May 2008: Tulsa, OK, "DNA In The Accounting Process," Defense Prisoner of War Missing Personnel Family Update (Presentation and Family Reference Collections). M Wadhams, A Fain, A Van Pelt.
34. May 2008: Captive Island, FL, Bode Seventh Annual Advanced DNA Technical Workshop East, "The Validation of FSS-i3 (Version 4.1.3) for use in AFDIL's Automation Section," MJ Hung, CJ Karashowsky.
35. June 2008: Crystal City, VA., "DNA In The Accounting Process," 38th Annual meeting of the National League of Families for Prisoners of War (Presentation and Family Reference Collections) JJ Canik, SM Barritt-Ross, L Finelli, BC Smith.
36. June 2008: Sinaia, Romania, International Society of Forensic Genetics – English Speaking Working Group, "Comparison of the AB mitoSEQr™ Resequencing Sets to Standard

- mtDNA Sequencing Protocols," RS Just, AM Lehrmann, KE Harris, MD Coble.
37. June 2008: Rockville, MD, AFDIL, tour and presentation for the National Student Leadership Council, SE Patterson.
 38. June 2008: Rockville, MD, "DNA In The Accounting Process," Commanding General, Joint POW-MIA Accounting Command (Presentation and Tour) L Finelli, BC Smith, JJ Canik.
 39. June 2008: Ashburn, VA, 21st AFIP Forensic Anthropology Course, "DNA Analysis of Skeletal Remains," SM Edson.
 40. June 2008: Sinaia, Romania, English Speaking Working Group meeting of the International Society of Forensic Genetics (ESWG), "Titanic's Unknown Child." (oral presentation) RS Just, O Loreille, MD Coble, KA Sturk, R Parr.
 41. June 2008: Sinaia, Romania, English Speaking Working Group meeting of the International Society of Forensic Genetics (ESWG), "Comparison of the mitoSEQr Resequencing sets to standard mtDNA sequencing protocols." (oral presentation) RS Just, AM Lehrmann, KE Harris, MD Coble.
 42. June 2008: Sarajevo, Bosnia and Herzegovina, Institute for Genetic Engineering and Biotechnology, "Titanic's Unknown Child." (oral presentation) RS Just, O Loreille, MD Coble, K Sturk, R Parr.
 43. July 2008: Chicago, IL, "DNA In The Accounting Process," Defense Prisoner of War Missing Personnel Family Update (Presentation and Family Reference Collections). JJ Canik, J Raskin-Burns, W. Graf, D. Donovan.
 44. July 2008: Dorchester, WI, USN Family Notification of MIA From the WWII (USS Oklahoma) - DNA Results. (Presentation) SE Patterson.
 45. July 2008: Rockville, MD, Staff Seminar, Armed Forces DNA Identification Laboratory; "Comparison of the mitoSEQr Resequencing sets to standard mtDNA sequencing protocols." (oral presentation) RS Just, AM Lehrmann, KE Harris, MD Coble.
 46. July 2008: Fort Huachuca, AZ, "DNA In The Global War On Terrorism," Biometric & Forensic Summit, US Army Intelligence Center & School. JJ Canik.
 47. July 2008: Miami, FL, "DNA In The Global War On Terrorism," SOUTHCOM Biometrics Meeting. L Finelli.
 48. July 2008: New Orleans, LA, International Association of Forensic Sciences Workshop, "New directions in forensic taphonomy: life after death." (oral presentation) OM Loreille.
 49. July 2008: Washington, DC, The 6th Annual National Institutes of Justice DNA Grantees Meeting, "Development and Expansion of High Quality Control Region Databases to Improve Forensic mtDNA Evidence Interpretation." (poster presentation) JA Irwin, JL Saunier, KM Strouss, TM Diegoli, KA Sturk, MRK Scheible, RS Just, TJ Parsons, MD Coble.
 50. July 2008: Ft. Worth, TX, University of North Texas – Center for Human Identification: The Forensic Science Training and Development Workshop on Missing Persons and Unidentified Human Remains, "The Armed Forces DNA Identification Laboratory," JE O'Callaghan.
 51. August 2008: Baltimore, MD, University of North Texas – Center for Human Identification: Forensic Science Training and Development Workshop, "The Armed Forces DNA Identification Laboratory," CT Johnson, JE O'Callaghan, JJ Canik.
 52. August 2008: Seattle, WA, Applied Biosystems' 8th Annual Future Trends in DNA Technology Seminar Series. "Resolution of a case of historical interest: Identification of the two missing Romanov children." (oral presentation) MD Coble, O Loreille, MJ Wadhams, SM Edson, K Maynard, P Gill, H Niederstätter, C Berger, B Berger, W Parson, LN Finelli.
 53. August 2008: Fort Leonard Wood, MO, Capabilities Assessment Workshop, "DNA In The Global War On Terrorism," DT Anderson.
 54. August 2008: Louisville, KY, International Association of Identity meeting, "DNA Identification of Northwest Airline flight 4422's victim." (oral presentation) OM Loreille.
 55. August 2008: Burlington, VT, Green Mountain DNA Conference, "Research Update at AFDIL." (oral presentation) MD Coble.
 56. August 2008: Portland, OR & Paradise, CA, USN Family Notification of MIA From the WWII (USS Oklahoma) - DNA Results. (Presentation) D Haliniewski.
 57. August 2008: Rockville, MD, DPMO-JPAC-CIL Meeting, "New Tools to Assist in the Identification of the K208." (oral presentation) MD Coble.
 58. August 2008: Rockville, MD, "DNA In The Accounting Process," Assistant Secretary of Defense for Manpower, Republic of Korea (Presentation and Tour) L Finelli, BC Smith, JJ

- Canik.
59. August 2008: Salt Lake City, UT, "DNA In The Accounting Process," Defense Prisoner of War Missing Personnel Family Update (Presentation and Family Reference Collections) JJ Canik, K Meyers, M O'Rourke, L Stagnitto.
 60. August 2008: Washington, DC, Applied Biosystems' 8th Annual Future Trends in DNA Technology Seminar Series. "Resolution of a case of historical interest: Titanic's unknown child." (oral presentation) RS Just, O Loreille, MD Coble, K Sturk, R Parr.
 61. August 2008: Dayton, OH, Forensic Bioinformatics 7th Annual Conference, The Science of DNA Profiling: A National Expert Forum. "Mitochondrial DNA, Y-STRs, and emerging forensic DNA tools." (oral presentation) RS Just, MD Coble.
 62. August 2008: Dayton, OH, Forensic Bioinformatics 7th Annual Conference, The Science of DNA Profiling: A National Expert Forum. "Development and use of mitochondrial DNA databases." (oral presentation) JA Irwin, RS Just, MD Coble.
 63. September 2008: Chicago, IL, Applied Biosystems' 8th Annual Future Trends in DNA Technology Seminar Series. "Resolution of a case of historical interest: Titanic's unknown child." (oral presentation) RS Just, O Loreille, MD Coble, K Sturk, R Parr.
 64. September 2008: Rockville, MD, Staff Seminar, Armed Forces DNA Identification Laboratory; "Titanic's Unknown Child." (oral presentation) RS Just, O Loreille, MD Coble, K Sturk, R Parr.
 65. September 2008: Rockville, MD, "DNA In The Accounting Process," Deputy Commander, Joint POW-MIA Accounting Command. (Presentation and Tour) L Finelli, BC Smith, JJ Canik.
 66. September 2008: Ottawa, Canada, Applied Biosystems' 8th Annual Future Trends in DNA Technology Seminar Series. "Resolution of a case of historical interest: Identification of the two missing Romanov children." (oral presentation) MD Coble, O Loreille, MJ Wadhams, SM Edson, K Maynard, P Gill, H Niederstätter, C Berger, B Berger, W Parson, LN Finelli.
 67. September 2008: Online Presentation for the Bright Talk Forensic Science Webcast (<http://www.brighttalk.com/>), "A 'Short' History of miniSTRs." (oral presentation) MD Coble.
 68. September 2008: Tampa, FL, "DNA In The Global War On Terrorism," Biometrics Consortium Conference, L Finelli.
 69. October 2008: Hollywood, CA, 19th International Symposium on Human Identification, "Mystery Solved: The Identification of the two missing Romanov Children by Forensic DNA Testing." (oral presentation) MD Coble, O Loreille, MJ Wadhams, SM Edson, K Maynard, P Gill, H Niederstätter, C Berger, B Berger, W Parson, LN Finelli.
 70. October 2008: Hollywood, CA, 19th International Symposium on Human Identification, "Examination and Optimization of the PreCR™ DNA Repair Mix on Damaged DNA for Short Tandem Repeat and Mitochondrial DNA Analysis." (oral presentation) M Farr, T Bille, C Cromartie, T Diegoli, MD Coble.
 71. October 2008: Pompeii, Italy, 9th International conference on ancient DNA, "Out with the Old and in with the New: A Change in the Method for Extracting Skeletal Remains of Missing American Service Members from Previous Conflicts." (oral presentation) JS Raskin-Burns, OM Loreille, MD Coble, JA Irwin, TM Diegoli, SM Barritt, SL Bettinger, DE Haliniewski, KJ Watson, SM Edson, L Finelli.
 72. October 2008: Washington, DC, AFIP Regularly Scheduled Conference, "The crash of Northwest flight 4422." (oral presentation) O Loreille.
 73. October 2008: Hollywood, CA, 19th International Symposium on Human Identification, "Recovering DNA profiles from low quantity and low quality forensic samples." (poster presentation) L Le, K Clabaugh, A Chang, M Meininger, MD Coble, O Loreille, M Scheible, R Demara, R Muller, S de Rozieres, M Kline, SB Lee.
 74. October 2008: Hollywood, CA, 19th International Symposium on Human Identification, "No Man Left Behind: DNA Identification of the DUSTWUNs." (poster presentation) JE Stevens, CE Meyer, M Narvaez, LM Stagnitto, DA Lee, BC Smith, WC Rodriguez, LN Finelli.
 75. October 2008: Pompeii, Italy, 9th International conference on ancient DNA, "The Use of Improved DNA Techniques in the Identification of Degraded Skeletal Remains from the Korean War." (poster presentation) SL Bettinger, MD Coble, O Loreille, KA Sturk, SM Edson, AF Christensen, SM Barritt, LN Finelli.
 76. October 2008: Hollywood, CA, HITA/AABB Workshop, "Use of Non-Autosomal Markers: Mitochondrial DNA." (oral presentation) MD Coble.
 77. October 2008: Washington, DC, AFIP Regularly Scheduled Conference, "Mystery Solved:

- The Identification of the two missing Romanov Children by Forensic DNA Testing.” (oral presentation) MD Coble, O Loreille, MJ Wadhams, SM Edson, K Maynard, P Gill, H Niederstätter, C Berger, B Berger, W Parson, LN Finelli.
78. October 2008: Crystal City, VA, “DNA In The Accounting Process,” 2006 Korea/Cold War Annual Government Briefings (Presentation and Family Reference Collections) JJ Canik, SM Barritt-Ross, L Finelli, BC Smith.
 79. October 2008: Hollywood, CA, Promega 19th International Symposium on Human Identification, “Mystery Solved: The Identification of the two Missing Romanov Children By Forensic DNA Testing.” MD Coble, O Loreille, MJ Wadhams, SM Edson, KL Maynard, P Gill, H Niederstätter, C Eichman, W Parson, LN Finelli.
 80. October 2008: Pompeii, Italy, 9th International Conference on Ancient DNA and Associated Biomolecules, “Out with the Old and In with the New: A Change in the Method for Extracting Skeletal Remains of Missing American Service Members from Previous Conflicts.” JS Raskin-Burns, OM Loreille, MD Coble, JA Irwin, TM Diegoli, SM Barritt, SL Bettinger, DE Haliniewski, KJ Watson, SM Edson, L Finelli.
 81. October 2008: Pompeii, Italy, 9th International Conference on Ancient DNA and Associated Biomolecules, “The Use of Improved DNA Techniques in the Identification of Degraded Skeletal Remains from the Korean War.” (poster) SL Bettinger, MD Coble, O Loreille, SM Edson, AF Christensen, SM Barritt, LN Finelli.
 82. October 2008: Tampa, FL, “DNA In The Global War On Terrorism,” CENTCOM AT-FP Conference, L Finelli.
 83. November 2008: Boone, NC, Appalachian State University Department of Biology Fall Seminar, “Mystery Solved: The Identification of the two missing Romanov Children by Forensic DNA Testing.” (oral presentation) MD Coble, O Loreille, MJ Wadhams, SM Edson, K Maynard, P Gill, H Niederstätter, C Berger, B Berger, W Parson, LN Finelli.
 84. November 2008: San Diego, CA, “DNA In The Accounting Process,” Defense Prisoner of War Missing Personnel Family Update (Presentation and Family Reference Collections). JJ Canik, K Sundling, C Johnson, E Bishop.
 85. December 2008: Ekaterinburg, Russia, Examination of the Romanov Family Remains: Epilogue, “Mystery Solved: The Identification of the two missing Romanov Children by Forensic DNA Testing.” (oral presentation) MD Coble, O Loreille, MJ Wadhams, SM Edson, K Maynard, P Gill, H Niederstätter, C Berger, B Berger, W Parson, LN Finelli.

Journal Articles:

1. Achilli A, Perego UA, Bravi CM, Coble MD, Kong QP, Woodward SR, Salas A, Torroni A, Bandelt HJ. The phylogeny of the four pan-American MtDNA haplogroups: implications for evolutionary and disease studies. *PLoS ONE*. 2008; 3(3): e1764.
2. Hill CR, Kline MC, Coble MD, Butler JM. Characterization of 26 miniSTR loci for improved analysis of degraded DNA samples. *J Forensic Sci*. 2008; 53(1): 73-80.
3. Irwin JA, Saunier JL, Strouss KM, Diegoli TM, Sturk KA, O'Callaghan JE, Paintner CD, Williams H, Watson K, Just R, Kovatsi W, Parsons TJ. Mitochondrial control region sequences for northern Greeks and Greek Cypriots. *International Journal of Legal Medicine*. 2008; 122(1): 87-89.
4. Irwin JA, Saunier JL, Strouss KM, Diegoli TM, Sturk KA, O'Callaghan JE, Paintner CD, Hohoff C, Brinkmann B, Parsons TJ. Mitochondrial control region sequences for Vietnam. *International Journal of Legal Medicine*. 2008; 122(3): 257-259.
5. Just RS, Diegoli TM, Saunier JL, Irwin JA, Parsons TJ. Complete mitochondrial genome sequences for 265 African American and U.S. Hispanic individuals. *Forensic Sci. Int.: Genet*. 2008; 2(3):e45-48.
6. Koon HEC, Loreille OM, Covington AD, Christensen AF, Parsons TJ, Collins MJ. Diagnosing post-mortem treatments which inhibit DNA amplification from US MIAs buried at the Punchbowl. *Forensic Sci Int*. 2008; 178(2-3): 171-177.
7. Parson W, Fendt L, Ballard D, Børsting C, Brinkmann B, Carracedo A, Carvalho M, Coble MD, Real FC, Desmyter S, Dupuy BM, Harrison C, Hohoff C, Just R, Krämer T, Morling N, Salas A, Schmitter H, Schneider PM, Sonntag ML, Vallone PM, Brandstätter A. Identification of West Eurasian mitochondrial haplogroups by mtDNA SNP screening: results of the 2006-2007 EDNAP collaborative exercise. *Forensic Sci. Int.: Genet*. 2008; 2(1): 61-68.
8. Saunier JL, Irwin JA, Just RS, O' Callaghan JE, Parsons TJ. Mitochondrial control region sequences from a U.S. “Hispanic” population sample. *Forensic Sci. Int.: Genet*. 2008; 2(2): e19-23.
9. Sturk KA, Coble MD, Barritt SM, Parsons TJ, Just RS. The application of mtDNA SNPs to a

forensic case. *Forensic Sci. Int.: Genet.* Supplement Series 1. 2008; 295-297.

Book Chapter:

Damann F, Edson S. Sorting and identifying commingled remains of US war dead: The collaborative roles of JPAC and AFDIL. Chapter 16. *In: Recovery, analysis, and identification of commingled human remains*, Adams BJ and Byrd JE (eds.). 2008; Humana Press, Totowa, NJ.

AUDITS/INSPECTIONS:

1. January 2008: Montgomery County, Maryland Fire Marshall Hazardous Use Permit Department. Obtained new certification and new Hazardous Use Permit issued.
2. February 2008: AFIP Annual Threat Assessment & Security Audit of the AFIP Gaithersburg Annex and the Rockville Complex. No deficiencies noted.
3. May 5-7, 2008: DOD DNA Quality Assurance Oversight Committee. No deficiencies noted.
4. May 7-9, 2008: American Society of Crime Laboratory Directors-Laboratory Accreditation Board Accreditation Pre-Inspection of the AFDIL conducted by USACIL. No deficiencies noted.
5. May 23-27, 2008: American Society of Crime Laboratory Directors-Laboratory Accreditation Board (ASCLD/LAB) accreditation audit. (AFDIL's ASCLD/LAB 5-year accreditation obtained).
6. June 2008: American Society of Crime Lab Directors/Laboratory Accreditation Board (ASCLD/LAB) audit (Internal) and Annual Laboratory Report to ASCLD/LAB. No deficiencies noted (Lab accreditation retained).
7. June 2008: Montgomery County, Maryland Fire Marshall Inspection of the AFIP Rockville Annex Complex. No deficiencies noted.
8. September 23, 2008: College of American Pathologist's Accreditation (Interim) Audit/Inspection. No deficiencies noted. AFDIL CAP Accreditation retained.
9. September 23, 2008: With the successful completion of the CAP Audit the Armed Forces DNA Identification Laboratory (AFDIL) of the DNA Registry retained its CLIA-88 compliant accreditation.



Marilyn Past, CAPT, MSC, USN
Chief
Date of Appointment – 03 October 2006

DIVISION OF FORENSIC TOXICOLOGY ARMED FORCES MEDICAL EXAMINER SYSTEM

ORGANIZATION

The Division of Forensic Toxicology is organized into 4 sections:

1. Postmortem and Human Performance Testing Laboratory
2. Technical Services which includes the DoD Drug Detection Quality Assurance Laboratory Section and the Quality Assurance Section
3. Forensic Toxicology Research, Program Development and Education
4. Military Working Dog Training Aid Program (added in June 2008)

STAFF

Scientific:

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Buddha Paul, PhD, Chief, Drug Testing Research/Program Development and Education
John Jemionek, PhD, Special Projects Chemist
Eric Shimomura, PhD, Research Chemist
Michael Smith, PhD, D-ABFT, Chemist/Expert Witness
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(A) Jenny Runkle, MS, Quality Assurance Chemist
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Joseph Addison, Analytical Toxicologist
Adeyinka Babalola, Quality Assurance/Quality Control Analytical Toxicologist
Dawn Cox, Analytical Toxicologist
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Rebecca DeRienz, Analytical Toxicologist
Pamela McDonough, Analytical Toxicologist
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Scott Larson, Analytical Toxicologist
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(A) Louis Corbin, Analytical Toxicologist
(D) Jenny Runkle, Analytical Toxicologist

- (D) Jon Moore, Analytical Toxicologist
- (A) Jessica Knittel, Analytical Toxicologist
 - Katherine Dunaway, HM1, USN, Laboratory Technician, NCOIC, Logistics
 - Sandra Zimiga, SSgt, USAF, Laboratory Technician
 - Audrey Sokol, SSgt, USAF, Laboratory Technician, NCOIC, Administration/MWD Program
 - Jason Werne, SSgt, USAF, Laboratory Technician
- (A) Stephanie Washington, SSgt, USAF, Laboratory Technician
 - Ngu Fon, HM2, USN, Laboratory Technician
- (D) Louis Corbin, HM2, USN, Laboratory Technician
- (A) Sueheigh Seepersaud, HM2, USN, Laboratory Technician
- (D) Joan Driver, SPC, USA, Laboratory Technician
- (D) Andrea Hernandez, SPC, USA, Laboratory Technician
 - Garland Hayward, SPC, USA, Laboratory Technician

Administrative:

- (D) Shairose Lalani, MSgt, USAF, Superintendent, Division of Forensic Toxicology
- (A) Kelly Vernon, MSgt, USAF, Superintendent, Division of Forensic Toxicology
 - Teresa Schaefer, Computer Specialist
- (A) Francis (Frank) Jackson, Business Manager
 - Jacqueline Jordan, Secretary

IMPACT

The Division of Forensic Toxicology and its personnel play a key role in establishing the role that toxicological agents play in military readiness as relates to illness, accident, or death. The scope of operations for the Division of Forensic Toxicology is immense; the division provides toxicological services to over 1700 military, federal, state, local, and non-governmental agencies worldwide.

The Division of Forensic Toxicology is divided into four sections: (1) Postmortem and Human Performance Testing Laboratory; (2) Technical Services which includes both the internal Quality Assurance (QA) Program and the DoD Drug Detection Quality Assurance (QA) Laboratory; (3) Forensic Toxicology Research, Program Development and Education; and (4) Military Working Dog Training Aid Program.

The Postmortem and Human Performance Testing Laboratory offers toxicological services for the Armed Forces Medical Examiner System, all Armed Forces air, ground, and sea based mishap investigations, Armed Forces criminal investigations, Armed Forces fitness for duty investigations, and Armed Forces medicolegal determinations (e.g., DUI). Toxicological consultations have been provided to hundreds of military and federal agencies in support of Operations Enduring Freedom (OEF) and Iraqi Freedom (OIF).

Technical Services includes the Quality Assurance section whose staff members prepare and certify all internal standards and controls for the Division, write and revise all Division Standard Operating Procedures, oversee all external proficiency testing, produce monthly Quality Assurance Reports and manage all external accreditation including the College of American Pathologists and the American Board of Forensic Toxicology (ABFT) programs. The Division is one of only 23 forensic toxicology laboratories certified by ABFT and the only DoD laboratory with this elite designation. The other Technical Services section, DoD Drug Detection Quality Assurance, is integrally linked to the DoD Drug Testing Program, manages the laboratory certification process for the six (1 Air Force, 2 Army, and 3 Navy) DoD Forensic Drug Testing Laboratories through proficiency testing and laboratory inspections. Annually, over twenty-one thousand (21,000) open and blind proficiency specimens are prepared and sent by division personnel to the military laboratories to ensure that the over 4.6 million drug test results are reported with 100% accuracy. Continued laboratory certification for each Military Forensic Drug Testing Laboratory is maintained through vigorous triennial inspections conducted by division personnel and civilian toxicologists. Division personnel contribute immeasurably to the continuing success of the DoD Drug Testing Program and the decline of drug use by military personnel. This is accomplished by development of new procedures to analyze drugs (e.g., Salvia divinorum and benzylpiperazine (BZP)), conducting prevalence testing for abused drug threats DoD-wide, including in-theater, such as benzodiazepines (e.g., valium), and conducting special testing for drugs of abuse that are not tested for by the military drug testing laboratories (e.g., psilocin, ketamine, various drugs associated with sexual assault cases including gamma-hydroxybutyrate (GHB) and rohypnol, benzodiazepines, dextromethorphan, zolpidem, methadone, mescaline, Salvia divinorum, BZP and others). This work is done in coordination

with the Forensic Toxicology Research, Program Development and Education section.

The Forensic Toxicology Research, Program Development and Education section keeps Forensic Toxicology on the cutting edge of science through a dynamic continuing education program and program development initiatives tailored to meet the varied needs of customers. This section also coordinates the overall research efforts for the Division.

The Division also provides expert witness testimony at military courts-martial and federal court proceedings, along with expert consultation for customer commands and the legal communities. The expertise of Forensic Toxicology personnel is often relied on for support for other aspects of the military drug testing program.

During this past year, the Division presented exhibits at three military professional conferences (the Society of Armed Forces Medical Laboratory Scientists, the Navy and Marine Corps Public Health Center Conference and the Army Force Protection Conference). Participation in these meetings provided critical sample submission information along with marketing the testing capabilities of the Division to the division's global customers. Prior to the Army Force Protection Conference, the Division staff members developed and produced a full-color tri-fold informational pamphlet containing essential sample submission, testing information, and point of contact information targeted at the division's customers. The Forensic Toxicology Division expanded the external formal education initiatives this past year by working with the Army Trial Counsel Assistance Program (TCAP) to provide experts in forensic toxicology for lectures in their Deployed Lawyer courses around the United States. The Division formalized their curriculum for a 4-day Special Agent forensic toxicology course offered by special request at the Rockville annex laboratory. LTC Lyons also expanded the division's educational offerings by lecturing on drug facilitated sexual assault at a DoD national sexual assault response counselors conference as well as at a regional sexual assault response counselors meeting in Europe.

During this year, the newly-approved Military Working Dog Training Aid program was preparing for implementation in early CY09. This laboratory section will prepare and distribute training aids, as well as receive and destroy expended training aid materials for over 200 DoD Military Working Dog units worldwide. The precise preparation of these training aids is paramount to the effectiveness of dog training and impacts drug enforcement efforts on DoD facilities world-wide.

ACCOMPLISHMENTS

Research:

The Division developed several new methods for toxicological analyses and worked on many projects:

- Clinical studies of drugs of abuse in humans
- Analyze Amphetamines immunoassay positive/confirmation negative specimens submitted from the DoD drug testing laboratories for BZP and other compounds
- Special drug testing including unit sweep testing for benzodiazepines, zolpidem, dextromethorphan/chlorpheniramine, synthetic opiate compounds, compounds of interest in sexual assault cases (GHB & rohypnol) and psilocin. Salvia divinorum was added to the special testing panel this year in response to demand from the field
- Tested for mefloquine in all suicide/undetermined cause of death cases for AFMES
- 6-Acetylmorphine stability in urine specimens
- Hemp product testing in regards to positive urinalysis results
- Commercial product testing in regards to positive urinalysis results
- Increase laboratory detection capability of heroin / morphine / hydrocodone abuse by modification of commercially-available drug screening methodologies for the military drug testing program
- Developed special testing for select AFMES medical examiner cases at the request of the MEs
- Developed Fourier Transform Infrared Spectroscopy (FTIR) methods for controlled substance analysis and improved the accountability of materials (now able to specifically identify compound lots) that will be used in training aids for the Military Working Dog program.
- Identification of chemical markers in biological samples after smoking cocaine
- Evaluate specimen validity testing for urine and saliva
- Examine chemical constituents in illicit cocaine
- Study the validity of cocaine and methadone analysis in bovine liver for postmortem proficiency testing

Proficiency Testing/inspections:

1. Managed the DoD Quality Assurance Open and Blind Drug Testing Proficiency Program worldwide with a total of 21,907 Quality Control (QC) specimens prepared, sent to and analyzed by the DoD drug testing laboratories in 2008: 3,888 military open proficiency specimens and 17,856 military blind proficiency specimens. In addition, 163 civilian proficiency specimens were prepared and sent upon request. Out of these proficiency specimens, a total of 617 specimens were tested internally by Forensic Toxicology as a quality assessment measure.
2. Participated in College of American Pathology (CAP) and the United States Department of Transportation (USDOT) external proficiency testing: CAP T (toxicology-3x per year), CAP UT (urine toxicology-3x per year), CAP UDC (urine drug toxicology-4x per year), CAP AL1 (whole blood alcohol/volatiles-3x per year), CAP SO (carbon monoxide-3x per year), CAP FTC (whole blood forensic toxicology-2x per year), and USDOT (NHTSA blood alcohol-2x per year).
3. The Division of Forensic Toxicology had two on-site inspections in 2008: First Advantage (6-7 February 2008: Dr Fred Fochtman) and the American Board of Forensic Toxicology (9-10 October 2008: Dr Anthony Costantino/Mr Rod McCutcheon).

DIAGNOSTIC CONSULTATION

9,895 cases were reported in 2008. The average turnaround time for these cases was 2.5 days.

Type of Case	CaseCount	Avg Turnaround Time (Days)
Aircraft Incidents	2,715	1.3
Air Fatalities	31	3.0
Criminal/Investigative	5,883	2.9
Postmortem	894	3.2
Quality Controls	300	1.8
Surveys	72	4.5
Total	9,895	2.5 days

LEGAL SUPPORT

Military and civilian toxicologists are often asked to provide expert witness testimony in military and other federal legal proceedings. The Quality Assurance section of Forensic Toxicology is responsible for preparing responses to requests for laboratory business records, Freedom of Information Act (FOIA) requests, discovery requests, and other special data requests (e.g., DoD Quality Assurance Laboratory (DoDQA) records). The number and types of requests are shown in the table below:

Branch of Service	Certified Reports/ Summary Reports	Discovery Requests	Full Laboratory Record Packages	Total
Civilian	0	0	8	8
Army	2	4	24	30
Navy/USMC	1	1	8	10
Air Force	7	6	24	37
Total	10	11	64	85

OPERATIONS

Expert Witness Testimony/Support/Consultation:

The Division does not supply defense consultants per the DoDI 5154.30. Military/Federal/civilian expert witness testimony and legal support (includes cases scheduled and rescheduled for which expert witness testimony/consultation and/or other legal support were provided):

January 2008:

Norfolk Naval Base, VA, T Lyons
 Fort Meade, MD, T Lyons
 Patrick AFB, FL, J Jemionek
 Fort Lewis, WA, J Jemionek
 Robbins AFB, GA, J Jemionek

February 2008:

Mildenhall RAF, UK, T Lyons
Patrick AFB, FL, B Paul
Vandenburg AFB, CA, B Paul
Patrick AFB, FL, M Smith
Vandenburg AFB, CA, E Shimomura

March 2008:

Weisbaden, Germany, T Lyons
Fort Meade, MD, B Paul
Scott AFB, IL, B Paul
Mildenhall RAF, UK, J Jemionek
Marine Corps Base, Beaufort, SC, J Jemionek
Marine Corps Base, Camp Lejeune, NC, J Jemionek

April 2008:

Marine Corps Base, Camp Pendleton, CA, T Lyons
Superior Court, Washington, DC, B Levine
Scott AFB, IL, B Paul
Andrews AFB, MD, B Paul
Hill AFB, UT, J Jemionek
Seymour-Johnson AFB, NC, M Smith
Fort Riley, KS, M Smith
District Court, Washington DC, M Smith

May 2008:

Fort Bragg, NC, T Lyons
Beale AFB, CA, J Jemionek
Marine Corps Base Quantico, VA, M Smith
United States Military Academy, West Point, NY, M Smith

June 2008:

Fort Knox, KY, T Lyons
Marine Corps Air Station, Cherry Point, NC, B Paul
District Court, Washington DC, J Jemionek
MEPCOM, Seattle, WA, J Jemionek
Langley AFB, VA, J Jemionek
Marine Corps Base, Quantico, VA, M Smith

July 2008:

Marine Corps Base, Camp Pendleton, CA, T Lyons
Norfolk Naval Base, Norfolk, VA, J Jemionek
District Court, Washington, DC, J Jemionek
Tinker AFB, OK, E Shimomura

August 2008:

Marine Corps Base, 29 Palms, CA, T Lyons
Army, Korea, B Levine
F. E. Warren AFB, WY, B Paul
Marine Corps Air Station, New River, NC, B Paul
Pope AFB, NC, J Jemionek
District Court, Washington, DC, J Jemionek

September 2008:

Fort Bragg, NC, T Lyons
Fort Dix, NJ, B Paul
Elemendorf AFB, AK, M Smith
Langley AFB, VA, M Smith
Norfolk Naval Base, VA, M Smith

October 2008:

United States Military Academy, West Point, NY, T Lyons
United States Military Academy, West Point, NY, M Smith

District Court, Washington, DC, E Shimomura

November 2008:

Jacksonville Naval Air Station, FL, T Lyons
Fort Benning, GA, T Lyons
Fort Polk, LA, B Paul
Andrews AFB, MD, B Paul
District Court, Washington, DC, J Jemionek
Elemendorf AFB, AK, M Smith

December 2008:

Charleston AFB, SC, T Lyons
Fort Meade, MD, J Jemionek
McGuire AFB, NJ, E Shimomura
Holloman AFB, NM, M Smith

DoD Drug Detection Quality Assurance Laboratory Inspections/other inspections:

1. January 2008: Army Drug Testing Laboratory, Tripler, HI, M Smith
2. January 2008: Navy Drug Screening Laboratory, Jacksonville, FL, T Lyons, M Jamerson
3. February 2008: DoD QA Laboratory, Rockville, MD
4. February 2008: Navy Drug Screening Laboratory, San Diego, CA, M Past, M Jamerson, A McKeague
5. March 2008: Navy Drug Screening Laboratory, Great Lakes, IL, M Smith, M Jamerson
6. April 2008: Army Drug Testing Laboratory, Fort Meade, MD, M Smith, J Jemionek, E Shimomura
7. April 2008: AF Drug Testing Laboratory, Brooks City Base, TX, M Past, E Shimomura, J Jemionek
8. May 2008: Army Drug Testing Laboratory, Tripler, HI, T Lyons, M Jamerson
9. May 2008: Navy Drug Screening Laboratory, Jacksonville, FL, M Past, B Paul
10. June 2008: Navy Drug Screening Laboratory, San Diego, CA, M Jamerson, J Magluilo
11. July 2008: Navy Drug Screening Laboratory, Great Lakes, IL, M Jamerson, J Holler
12. August 2008: Army Drug Testing Laboratory, Fort Meade, MD, E Shimomura, J Runkle, P McDonough
13. August 2008: UCLA Steroid Testing Laboratory (DoD Contract laboratory), T Lyons
14. August 2008: AF Drug Testing Laboratory, Brooks City Base, TX, E Shimomura, J Runkle
15. September 2008: Army Drug Testing Laboratory, Tripler, HI, M Jamerson, J Holler
16. September 2008: Navy Drug Screening Laboratory, Jacksonville, FL, M Jamerson
17. September 2008: AFIP Environmental Toxicology CAP inspection, M Smith
18. October 2008: Navy Drug Screening Laboratory, San Diego, CA, T Lyons
19. November 2008: Navy Drug Screening Laboratory, Great Lakes, IL, M Past, B Paul
20. December 2008: AF Drug Testing Laboratory, Brooks City Base, TX, M Jamerson, J Holler
21. December 2008: Army Drug Testing Laboratory, Fort Meade, MD, T Lyons, B Paul, J Magluilo, J Holler, M Smith

National/International Consultations/Collaborations:

1. Research Triangle Institute, Center for Forensic Science, Research Triangle Institute, NC, analysis of illicit cocaine samples, B Paul
2. Addiction Research Center, NIDA, NIH, Baltimore, MD, clinical studies of human cocaine metabolism, B Paul
3. Institute of Forensic Sciences, Ministry of Justice, Shanghai, Peoples Republic China, M Smith
4. Argentina Medical Association, Buenos Aires, Argentina, M Smith
5. College of American Pathologists Toxicology Resource committee meetings, San Antonio, TX, Amelia Island, FL, and Chicago, IL, M Smith

EDUCATION

Faculty Appointments:

1. Clinical Associate Professor, University of Maryland School of Medicine, Department of Pathology, B Levine.

2. Adjunct Assistant Professor, Uniformed Services University of the Health Sciences, Department of Military & Emergency Medicine, A McKeague.

Lectures:

1. February 2008: Navy Medicine, Manpower, Personnel, Training and Education Command, Advanced Medical Department Officer Course, "Fitness report writing," M Past.
2. February 2008: Navy Dental Center, San Diego, General military training—"Fitness report writing," M Past.
3. March 2008: Navy Medicine, Manpower, Personnel, Training and Education Command, Advanced Medical Department Officer Course, "Fitness report writing," M Past.
4. March 2008: Navy Medicine, Manpower, Personnel, Training and Education Command, Financial Management Course, "Fitness report writing," M Past.
5. April 2008: Navy Medicine, Manpower, Personnel, Training and Education Command, Advanced Medical Department Officer Course, "Fitness report writing," M Past.
6. May 2008: Harvard Associates for Police Science, "Use of toxicological information in the final diagnosis," B Levine.
7. June 2008: Navy Medicine, Manpower, Personnel, Training and Education Command, Advanced Medical Department Officer Course, "Fitness report writing," M Past.
8. June 2008: National Naval Medical Center, 2nd Annual Housestaff Career Symposium, "Fitness report writing," M Past.
9. July 2008: Navy Medicine, Manpower, Personnel, Training and Education Command, Advanced Medical Department Officer Course, "Fitness report writing," M Past.
10. September 2008: Navy Medicine, Manpower, Personnel, Training and Education Command, Advanced Medical Department Officer Course, "Fitness report writing," M Past.
11. September 2008: Navy Medicine, Manpower, Personnel, Training and Education Command, Financial Management Course, "Fitness report writing," M Past.
12. October 2008: Harvard Associates for Police Science, "Use of toxicological information in the final diagnosis," B Levine.
13. November 2008: University of Maryland, Toxicology 601, "Forensic Toxicology I," B Levine.
14. November 2008: University of Maryland, Toxicology 601, "Forensic Toxicology II," B Levine.
15. December 2008: Navy Medicine, Manpower, Personnel, Training and Education Command, Advanced Medical Department Officer Course, "Fitness report writing," M Past.

Workshops/Other Training:

1. March 2008: AFIP/AFMES, 3-day Special agent forensic toxicology training course, 2 NCIS special agents, M Past, T Lyons, J Jemionek, E Shimomura, J Magluilo, S Vorce, K Shannon, M Jamerson.
2. August-September 2008: Toxicology training for Dr. Mohammed M. Hashim, Iraq Medical-Legal Institute, J Magluilo, S. Vorce, P McDonough, A Dickson, J Addison, S Washington, S Zimiga, M Past.
3. September 2008: Toxicology training for WRAMC Army clinical laboratory officers, E Shimomura.

Presentations:

1. February 2008: New Orleans, LA, Society of Armed Forces Medical Laboratory Scientists meeting, "Forensic toxicology: a vital role in unit readiness," S Zimiga, A Sokol, J Driver.
2. February 2008: Washington, DC, American Academy of Forensic Sciences meeting, "Comparison of the novel direct analysis in real time-of-flight mass spectrometry (AccuTOF-DART) and signature analysis for identification of constituents of refined illicit cocaine," J Miller, N Bynum, E Minden, P Stout, J Casale, I Kim, J Runkle, M Past, B Paul.
3. March 2008: Hampton, VA, 47th Navy Occupational Health and Preventive Medicine Conference, "Forensic toxicology: a vital role in unit readiness," M Past, K Dunaway, L Corbin, N Fon.
4. March 2008: Little Creek, VA, Naval Amphibious Base, Special Warfare Group 2 Medical Logistics and SEAL Team 10 briefing, "Comparative evaluation of 10 hemostatic agents in two injury models, preliminary in-vivo and in-vitro results," A McKeague.
5. March 2008: Ft Story, VA, TCAP Deployed Justice Course, "DoD drug testing program overview," "Forensic toxicology division mission and capabilities," and "Legal defenses and case studies," M Past.
6. March 2008: Peoples Republic, China, Institute of Forensic Sciences, Ministry of Justice,

- "Driving under the influence of drugs: a complex, global public health problem," M Smith.
7. April 2008: Huntington, WV, Mid-Atlantic Association of Forensic Science annual meeting, "Forensic Toxicology: An Overview of Casework," S Vorce.
 8. April 2008: New Orleans, LA, National Guard Substance Abuse and Sexual Assault Prevention and Response Conference, "Special drug testing update," M Past.
 9. April 2008: Garmisch, Germany, TCAP Deployed Justice Course, "DoD drug testing program overview," "Forensic toxicology division mission and capabilities," and "Legal defenses and case studies," T Lyons.
 10. April 2008: AFIP, Washington, DC, "Isomerization of delta-9-THC to delta-8-THC when tested as trifluoroacetyl-, pentafluoropropionyl-, or heptafluorobutyryl- derivatives," J Holler.
 11. April 2008: AFIP, Washington, DC, "Analysis of the aminosteroidal non-depolarizing neuromuscular blocking agent, vecuronium," J Magluilo.
 12. June 2008: Martinique, International Association of Forensic Toxicologists, "Distinguishing new cannabis exposure in occasional users by time intervals between positive specimens," M Smith.
 13. June 2008: Annapolis, Maryland, Joint Service Drug Laboratory Training Symposium, "AFIP/AFMES counternarcotics testing update," M Past.
 14. June 2008: Annapolis, Maryland, Joint Service Drug Laboratory Training Symposium, "AFIP/AFMES inspection, contracting, and steroid testing updates," T Lyons.
 15. June 2008: Annapolis, Maryland, Joint Service Drug Laboratory Training Symposium, "DoD QA program update," A McKeague.
 16. June 2008: Annapolis, Maryland, Joint Service Drug Laboratory Training Symposium, "Military drug testing: 6-AM study—use of 6-AM immunoassay reagent to detect heroin and morphine use," J Jemionek.
 17. June 2008: Annapolis, Maryland, Joint Service Drug Laboratory Training Symposium, "Selected court case studies," T Lyons, J Jemionek.
 18. June 2008: Annapolis, Maryland, Joint Service Drug Laboratory Training Symposium, "Isomerization of delta-9-THC to delta-8-THC during derivatization," J Holler.
 19. June 2008: Annapolis, Maryland, Joint Service Drug Laboratory Training Symposium, "Ethics in research, publication, and court testimony," B Paul.
 20. June 2008: Annapolis, Maryland, Joint Service Drug Laboratory Training Symposium, "Stability of 6-acetylmorphine in biological and synthetic urine," S Larson.
 21. June 2008: Annapolis, Maryland, Joint Service Drug Laboratory Training Symposium, "Special testing topic: designer drug analysis," S Vorce.
 22. June 2008: Arlington, VA, TCAP Deployed Justice Course, "DoD drug testing program overview," "Forensic toxicology division mission and capabilities," and "Legal defenses and case studies," T Lyons.
 23. July 2008: Ft Meade, MD, Reserve JAG legal training course, "DoD drug testing program overview," "Forensic toxicology division mission and capabilities," and "Legal defenses and case studies," T Lyons.
 24. July 2008: Tampa, FL, DoD Sexual Assault Response Coordinator Meeting, "Alcohol facilitated sexual assault: the science," T Lyons.
 25. August 2008: Albuquerque, NM, Army Force Health Protection Conference, "Forensic toxicology: a vital role in unit readiness," S Washington, J Werne, S Zimiga, G Hayward, T Lyons.
 26. August 2008: Rockville, MD, Substance Abuse and Mental Health Services Administration Drug Testing Advisory Board meeting, "DoD's experience with prescription meds," T Lyons.
 27. September 2008: Garmisch, Germany, Europe Sexual Assault Response Coordinator annual meeting, "Alcohol facilitated sexual assault: the science," T Lyons.
 28. September 2008: Chicago, IL, College of American Pathologists meeting, "Toxicology quality control standards," M Smith.
 29. October 2008: Phoenix, AZ, Society of Forensic Toxicologist annual meeting, "Methylecgonidine and ecgonidine after four different routes of cocaine administration," M Smith, W Darwin, E Shimomura, S Lalani, D Trinidad, E Cone, B Paul, M Huestis.
 30. October 2008: Lackland AFB, San Antonio, TX, Joint Service Military Working Dog Committee meeting, "Military working dog narcotic training aid program," A McKeague.
 31. November 2008: Buenos Aires, Argentina, 4th Regional South American Meeting of the International Association of Forensic Toxicologists, "Postmortem toxicology update," M

Smith.

32. November 2008: Bariloche, Argentina, Jornadas de Toxicologia Forense, "Postmortem forensic toxicology standards of practice," M Smith.

Publications:

Journal Articles:

1. DeRienz R, Holler J, Manos M, Jemionek J, Past M. Evaluation of four immunoassay screening kits for the detection of benzodiazepines in urine. *J Anal Toxicol.* 2008; 32, 433-437.
2. Holler J, Bosy T, Dunkley C, Levine B, Past M, Jacobs A. Delta-9-tetrahydrocannabinol content of commercially available hemp products. *J Anal Toxicol.* 2008; 32, 428-432.
3. Holler J, Smith M, Paul S, Past M, Paul B. Isomerization of delta-9-THC to delta-8-THC when tested as trifluoroacetyl-, pentafluoropropionyl-, or heptafluorobutyryl-derivatives. *J Mass Spectrometry.* 2008; 43, 674-679.
4. Jemionek J, Copley C, Smith M, Past M. Concentration distribution of the marijuana metabolite delta-9-tetrahydrocannabinol-9-carboxylic acid (THC-COOH), and the cocaine metabolite benzoylecgonine (BZE), in the Department of Defense urine drug-testing program. *J Anal Toxicol.* 2008; 32, 408-416.
5. McDonough P, Holler J, Vorce S, Bosy T, Magluilo J, Jr, Past M. The detection and quantitative analysis of the psychoactive component of *Salvia divinorum*, Salvinorin A, using liquid chromatography-mass spectrometry in human biological fluids. *J Anal Toxicol.* 2008; 32, 417-421.
6. McDonough P, Levine B, Vorce S, Jufer R, Fowler D. The detection of hydromorphone in urine specimens with high morphine concentrations. *J Forensic Sci.* 2008; 53 (3), 752-754.
7. Smith M, Jemionek J, With C. Is everyone ready to go to court? Letter to the Editor, TOX TALK, Society of Forensic Toxicologists, September 2008.
8. Vorce S, Mallak C, Jacobs A. Quantitative analysis of the aminosteroidal non-depolarizing neuromuscular blocking agent vecuronium by LC-ESI-MS: a postmortem investigation. *J Anal Toxicol.* 2008; 32, 422-427.
9. Vorce S, Holler J, Past M. Detection of 1-benzylpiperazine and 1-(3-trifluoromethylphenyl)-piperazine in urine analysis specimens using GC-MS and LC-ESI-MS. *J Anal Toxicol.* 2008; 32, 444-450.

OTHER ACCOMPLISHMENTS:

Awards:

Department of Defense Superior Service Awards, Office of the Assistant Secretary of Defense for Health Affairs/Tricare Management Activity, Drug Testing and Program Policy Office, presented to Mr. William Mayo and Dr. Buddha Paul, June 2008.

Editorial Boards:

1. *Journal of Analytical Toxicology*, B Levine.
2. *American Journal of Forensic Medicine and Pathology*, B Levine.

Manuscripts/Research Proposals Reviewed:

1. *Journal of Analytical Toxicology*, B Levine (2), M Smith (3), B Paul (1)
2. *American Journal of Forensic Medicine and Pathology*, B Levine (4)
3. *Journal of Forensic and Legal Medicine*, B Levine (2)
4. *Journal of Chromatography B*, B Paul (1)
5. *Forensic Science International*, B Paul (1)

National Panels:

1. College of American Pathologists, Toxicology Resource Committee, M Smith.
2. DoD Biochemical Testing Advisory Board: M Past (Chair), T Lyons.
3. DoD Laboratory Certification Inspection Program: M Past, T Lyons, J Jemionek, M Smith, B Paul, J Holler, M Jamerson, A McKeague, J Magluilo, E Shimomura, J Runkle, P McDonough.
4. Department of Health and Human Services National Laboratory Certification Program Inspectors: M Jamerson, B Paul, M Smith.

Patents:

1. US Patent number 7,445,908 issued 4 November 2008, "Detection of oxidizing agents in urine", B Paul.

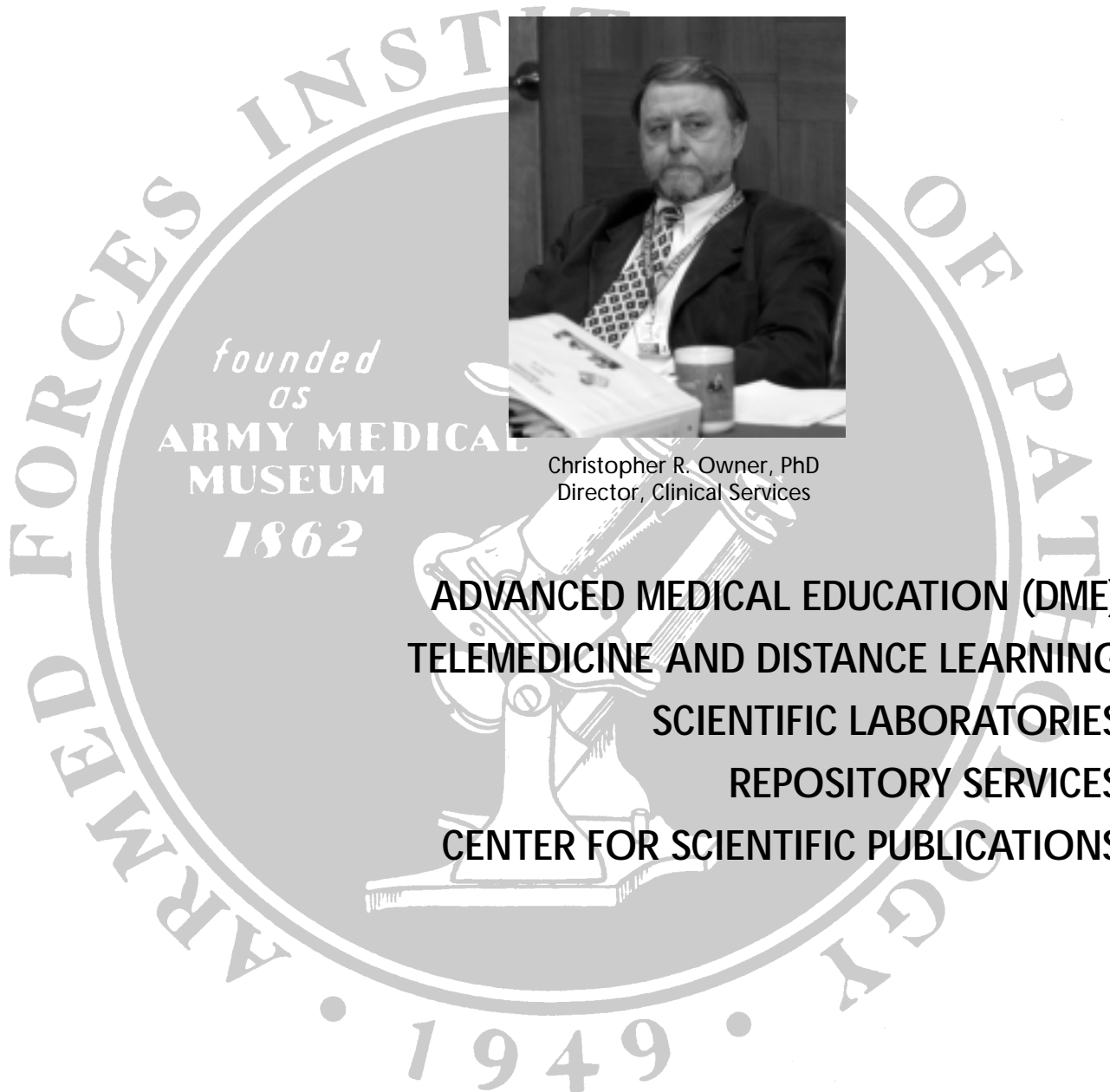
DIRECTORATE OF CLINICAL SCIENCES



Christopher R. Owner, PhD
Director, Clinical Services

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Carlos H. Moran, MS
Chair
Date of Appointment—July 28, 2007

DEPARTMENT OF MEDICAL EDUCATION

ORGANIZATION

The department is organized by function and comprises workshop and seminar design and development, residents-fellows programs, text-based education, Web-based instruction, meeting planning, marketing, art and graphics, study sets, audiovisual, and accounting. The chairperson of the department reports to the Director, Clinical Sciences, Christopher R. Owner, PhD. The Oversight Committee for Continuing Medical Education oversees the Department's activities.

STAFF — EDUCATIONAL DIVISION

Carlos H. Moran, MS, Chair
Mark L. Hovland, Associate Director
Ricky H. Giles, Educational Coordinator (Pathology)
Oscar Molina, TSgt, USAF, Educational Coordinator (Pathology)
Carl Williams, Educational Coordinator (Radiology)
David M. Parker, YN2, USN, Educational Coordinator (Radiology)
Virginia A. McMillan, Visual Information Specialist

Administrative:

Lisa P. Holmes, Meeting Management
Christina V. McLean, Marketing Specialist
Kim L. Williams-Chasten, Office Management

Other AFIP/ARP Staff in Support of Mission:

Nicole Jenkins, Histopath QA
Estelle Page, Histopath QA (Retired)

Audiovisual:

Joseph W. Frederick, Audiovisual Support Technician
Isaac J. Miller, Jr., Audiovisual Support Technician

Ash Library:

Prem Kalra, Library Consultant
Judith Paige, Library, Library Technician
Daniel Mulholland, Library Technician

IMPACT

The educational mission of the Armed Forces Institute of Pathology [AFIP] and American Registry of Pathology [ARP] is to carry out educational activities in partnership with government, academic, and private sector organizations and to develop and apply expert information for the benefit of individuals and their health care professionals (AFIP Strategic Plan, 1997). Specifically, we support continuing medical education in pathology and radiology and other related medical disciplines by providing specialized information and advanced research and technology in the study of the pathophysiology of disease.

SCOPE

The AFIP uses numerous approaches to determine how courses are structured and what information to include. First, and foremost, is the material we glean from our secondary consult

service. The AFIP receives over 45,000 cases annually, many of which are difficult diagnostic cases that become resources for our educational activities. In the past 4 years, we have begun to obtain needs data from the Institute's Pathology Information System [PIMS]. Numerous strategies are employed to assess the needs of participants in AFIP's CME activities: The diagnostic agreement codes 1s, 3s, and 4s from the PIMS database are selected. This ongoing "dialogue" with the community of pathologists shapes the information selected for both our workshops and didactic programs to accurately reflect the informational needs of both the military and civilian physician. To augment these data, we also assess the scientific advances in the field of pathology and medicine, seek the consensus of expert pathologists and clinicians, solicit feedback from both potential and actual attendees at our programs, and monitor the media to determine issues and topics of importance to the public. The effectiveness of these audience assessment activities can be seen in the evaluation data. The courses we offer cover most of the subspecialties in pathology including dentistry, veterinary, forensics, and environmental medicine.

AUDIENCE

Our primary audience includes military and civilian pathologists, radiologists, and related subspecialty clinicians in the United States and Canada, and Internationally. Secondary audiences include other physicians, health professionals, and interested ancillary medical support systems.

PROFESSIONAL ACTIVITIES

In 2008, the AFIP and ARP offered 28 live courses, 51 Regularly Scheduled Series, Ground Rounds Video teleconferences [VTC], Weekly Professional Staff Conferences and Callendar-Binford Lectures, 6 web-based courses, and 1 Enduring Material Open File Legal Medicine to 7,047 pathologists, clinicians, legal medicine professionals, veterinary pathologists, radiologists, dentists, forensic anthropologists, military and civilian residents, and professionals in related disciplines.

Training

The Department of Medical Education is responsible for coordinating all training/visits to the AFIP and for ensuring that all DOD guidelines and regulations are adhered to. The training office serves as the liaison between the AFIP and the Office of the Army Surgeon General (OTSG) and/or the U.S. Department of State as appropriate. In 2008, the Department of Medical Education assumed the responsibility of initiating and managing international Student Exchange Visitors/Research Scholars for the Institute. The training office is responsible for ensuring all training initiatives comply with governing regulations and maintain compliance with approved international or applicable affiliation agreements.

In addition to services available through the Department of Medical Education, the AFIP also offers trainees/visitors an opportunity to participate in hand-on training/study programs. The AFIP offers many educational opportunities to those interested in training rotations, fellowships, etc., in the AFIP's specialized department and participate in a variety of staff conferences. We offer one-on-one instruction with staff pathologists and the opportunity to participate in AFIP activities, providing an optimal training environment.

The Training Office processed approximately 310 Foreign National requests to attend Department of Medical Education and Radiology courses. The office also coordinated approximately 193 interdepartmental training requests for a total of 7,141 training days.

Marketing

In 2008, DOME's marketing initiatives were implemented across 13 live CME courses and workshops. In much of our outreach, emphasizing our recently awarded six-year accreditation from the Accreditation Council of Continuing Medical Education (ACCME) — which less than 1% of all ACCME-accredited providers nationwide receive — was key. With an expansion of advertising into newly targeted regions, fresh audiences and through alternative venues, reassuring our potential course registrants of the quality of AFIP's CME program was paramount.

With an emphasis on expanding our target audiences, DOME executed a strategic nationwide outreach plan, as well as an intensely unprecedented international marketing campaign. In addition to reaching out to our long-established audience of anatomic and clinical pathologists, radiologists, and veterinarians (both in practice or in residencies), we also included various disciplines of law enforcement, which proved to be extremely successful among our forensic courses in particular.

Relative to tactics, a robust direct mail campaign disseminated information through nearly 100,000 course brochures, as well as numerous advertisements in trade publications, newsletters (both internal and external), via e-mail marketing and extensive web postings on reputable industry-related websites. Through a major revamping of AFIP's main website, several enhancements were made that helped bolster our outreach efforts, including a more easily navigable homepage, RSS feeds, a responsive inquiry system and active ongoing organizational announcements. On AskAFIP™ — our online educational platform — we incorporated “self-assessment” quizzes that enabled potential course registrants to measure their current knowledge base, and help them understand the benefits of our CME program to their profession and those whom they serve. We've also integrated AFIP's consultative services into the mix by inviting registrants to submit complex cases from their respective institutions to our Course Directors as a part of their interactive learning experience in our lectures and workshops. Features to come include interactive video streaming across multiple pathological specialties on AskAFIP™. As a part of our efforts to keep our internal staff up-to-date through the best CME training, webinars will offered through AFIP's intranet site will soon be available for internal staff to take advantage of from the convenience of their desk.

Building new and stronger relationships with both current and potential corporate sponsors was also a priority. This year, DOME brought in \$13,500 in financial contributions from medical suppliers and publication companies, in addition to nearly \$6,000 worth of in-kind donations towards our CME program. Ventana Medical Systems, Inc. recently agreed to support AFIP's educational initiatives through a financial contribution of up to \$2,500 for nearly each CME lecture, along with featuring an AFIP pathologist at one of their most prestigious annual conferences — which helps to reaffirm ours — while linking AFIP and its audiences to current events and advances in pathology and radiology.

Aggressive innovation and guerilla marketing tactics are principle factors in our outreach strategy as we move into 2009. As we continue to stretch our mindsets and capabilities into untapped opportunities, we also look forward to creating more opportunities for the medical professionals we serve in their careers, as well as benefitting those they serve in their everyday lives.

AFIP Exhibitions:

- 1. March 2008: United States Canadian Academy of Pathology (USCAP), Denver, Colorado, Christina McLean, Marketing Specialist–Exhibitor on behalf of AFIP (DOME)
- 2. June 2008: Association of the United States Army Medical Symposium (AUSA), San Antonio, Texas, Christina McLean, Marketing Specialist–Exhibitor on behalf of AFIP (DOME)

AUDIOVISUAL DIVISION

In 2008, the Audiovisual Division supported ten courses for AFIP medical education, most held in the Washington, DC area hotels. We transported audiovisual equipment and (30-140) microscopes to hotels and setup the equipment up for use in course training. There were other AFIP activities in-house that we supported: (32) Weekly Staff Conferences and Callender-Binford Lectures; (18) HIPAA training sessions; (16) NSPS training classes; (6) newcomers briefings; as well as Military training, EEO training, Warrior training, and Retirement and Promotion ceremonies in Dart, Russell, Owens, DCR and N1601 conference rooms. We purchased 3 new LCD projectors and had one installed in the DCR. A new camera and DVR recorder were installed in DART auditorium. The audiovisual office was moved from the basement to the second-floor education area.

There was an increase in the number of activities for Walter Reed – (WRAMC)

- 1. Medical management of Chemical and Biological Casualties Course – (MMBC)
- 2. Medical Emergency Ionizing Radiation Course (MEIR)
- 3. NSPS training
- 4. Warrior Training for the troops †12 (WRAMC)

FY 2008 saw no increase in equipment other than LCD bulbs computer remotes.

- 1. Property Value - \$204,000.00
- 2. Audiovisual budget FY 2009
 - a. Equipment Replacement and New \$5,500.00
 - b. Supplies \$1,200.00
 - c. Maintenance and Repairs \$2,000.00
 - Total \$8,700.00

3. A/V Request for Support = 245

ASH LIBRARY**IMPACT**

Ash Library staff are committed to providing best customer service in a friendly environments. Our first priority has been to provide online access to the journals. Our users like the simplicity of viewing the articles of their interest via their pc's. We provide full text access to 169 journals. In addition, ProQuest online database provides access to 2,890 journals—about 1,500 are full text. Users requested that Ash Library start subscribing to PathIQ ImmunoQuery. We currently have 4,506 book titles in our collection. Users are encouraged to submit their suggestions for buying new books and journals.

ACCOMPLISHMENTS

Library staff worked closely with Voyager Company to keep us as a member of the consortium and to let us use their library system. This arrangement resulted in huge savings to the AFIP. Along with several Library Committee members, we reviewed Ash Library's journal collection. Several low-usage titles will be dropped and three new titles will be added starting 2009. Online access has been added to use frequently requested journal titles through Ovid and OCLC.

INTERLIBRARY LOANS ASH LIBRARY STATISTICS**a. BOOK CIRCULATION**

Checked out	176
Checked in	199
Renewals	170

b. INTERLIBRARY LOANS

Borrowed	1,689
Loaned	25

c. ACQUISITIONS

Book titles received	70
Serial titles deleted	4
Serial titles added	1

d. COLLECTIONS

Total book titles	4,506
Current printed journals	314
Online journals available	1,669

DEPARTMENTAL TRAINING STUDY

	Federal Attendees	Non Federal Attendees	Intern'l Attendees	Training Training Federal	Training Days Non-Fed	Training Days International	Days Units
Armed Forces Medical Examiner	0	0	1	0	0	11	88
Dermatopathology	17	24	2	327	28	456	6,488
Directorate of Advanced Pathology	0	0	0	0	0	0	0
Environmental & Toxicologic Pathology	0	0	1	0	0	183	1,464
GU Pathology & Nephropathology	1	10	5	15	155	181	2,808
Gynecologic & Breast Pathology	2	2	3	32	32	56	960
Hematopathology	2	4	1	42	68	22	1,056
Hepatic & Gastrointestinal Pathology	4	10	2	62	214	43	2,552
Infectious Dis, AIDS & Microbiology	0	1	0	0	20	0	160
Molecular Pathology	0	3	1	0	67	21	704
Neuropathology & Ophthalmic Pathology	3	11	2	172	15	939	3,392
Oral Pathology	0	1	4	0	127	152	2,280
Orthopedic Pathology	1	0	0	10	0	0	80
Otolaryngic Pathology	0	0	1	0	0	5	40
Pulmonary & Mediastinal Pathology	5	5	1	77	94	113	2,272
Radiologic Pathology	0	2	1	0	26	23	392
Scientific Laboratories	0	0	0	0	0	0	0
Soft Tissue Pathology	3	10	5	35	214	79	2,448
Telepathology	0	0	0	0	0	0	0
Veterinary Pathology	19	13	10	3,434	220	73	29,816
SUBTOTAL	57	96	40	4,206	1,424	1,457	57,000
TOTAL			193			7,087	57,000

LONG COURSES

	Federal Attendees	Non Federal & International Training Days	Federal Training Days	Non Federal & International Training Days	Units
Anatomic Pathology	13	94	78	752	6,640
Radiologic Pathology	9	241	171	4,579	38,000
Radiologic Pathology	12	247	240	4,940	41,440
Radiologic Pathology	11	257	220	5,140	42,880
Radiologic Pathology	6	222	120	4,440	36,480
Radiologic Pathology	5	223	95	4,237	34,656
SUBTOTAL	56	1,284	924	24,088	200,096
TOTAL		1,340		25,012	200,096

SHORT COURSES

	Federal Attendees	Non Federal & International Training Days	Federal Training Days	Non Federal & International Training Days	Units
23rd Annual Washington Neuroradiology	11	129	22	258	2,240
46th Annual Neuropathology Review	17	137	85	685	6,160
44th Annual Forensic Identification & Emerging Technologies	43	37	215	185	3,200
7th Annual European Descriptive Veterinary Pathology	0	69	0	345	2,760
6th Annual Soft Tissue Tumor	10	41	30	123	984
34th Annual Orthopedic Pathology	9	33	18	66	672
17th Descriptive Veterinary Pathology ...	15	113	75	565	5,120
21st Annual Forensic Anthropology	13	55	65	275	2,720
Supporting Young Children Through Challenging Times	10	0	10	0	80
42nd Annual Urological Pathology & Radiology Course	9	39	54	234	2,304
10th Annual Current Laboratory Animals Science Seminar	8	48	16	96	896
Air Force Medical Forensic Sustainment Support Team Training	15	0	75	0	375
51st Annual Pathology of Laboratory Animals	28	73	112	292	3,232
Ophthalmic Pathology for Ophthalmologists	16	82	80	410	3,920
Ophthalmic Pathology for Ophthalmologists – Wednesday Only ..	0	11	0	11	88
50th Annual Pathology of Laboratory Animal	35	128	140	512	5,216
19th Annual GI Surgical Path & Endoscopic Biopsies of the GI Tract	20	71	40	142	1,456
28th Annual Hepatopathology: The Interpretation of Liver Biopsies	18	65	54	195	1,992
Special Operations Medical Indoctrination Course	28	10	140	0	1,120
Basic Forensic Pathology	23	49	115	240	2,840
Military-Connected Children and Grief	5	0	10	0	80
Tumors of the Nervous System	0	69	0	69	552
Command (USASOC) Surgeon's Conference	83	0	166	0	1,520
SUBTOTAL	416	1,259	1,522	4,703	49,527
TOTAL	1,675	6,225	49,527		

VIDEO TELECONFERENCE

	Federal Attendees	Non Federal Attendees & International	Units
Lesions of the Liver	49	0	49
Medical Geology	13	0	13
Prostate Carcinoma	66	0	66
Lipomas and Lipomasarcomas	49	0	49
Non-Neoplastic Adenopathies	46	0	46
Interstitial Pneumonia	50	0	50
Bone and Mineral	34	0	34
T Cell Lymphomas #2	34	0	34
Surgical Pathology of Infectious Diseases	40	0	40
CT Assisted Autopsy	6	0	6
Embedded Metal Fragments	4	0	4
Renal Neoplasms	34	0	34
Genetics and the Law	15	0	15
Tumors of the CNS.....	40	0	40
Malignant Eccrine Neoplasms	41	0	41
Bacterial Osteomyelitis Update	19	0	19
Evaluation of Kidney Biopsy	35	0	35
Intestinal Polyps: Pitfalls in Diag	53	0	53
Pleomorphic Sacomas	46	0	46
TOTAL.....	674	0	674

YEAR-ROUND TRAINING/EDUCATION

	Total Attendees	Days	Units	Hours Units
Legal Medicine Open File	1,874	1171.25	5	9,370
Weekly Professional Staff Conferences & Callendar Binford Lectures	855	106.88	1	855
Histopathology Quality Assessment Program	199	560	16	3,184
Virtual Gastrointestinal Endoscopic Biopsy	103	64.38	5	515
Pathology Of Antiretroviral Therapy	53	33.13	5	265
Online Urologic Pathology Series	93	23.25	2	186
Registry of Oral & Maxillofacial Pathology	41	61.5	12	492
TOTAL	3,218	2,020.39	46	14,867

TOTAL NUMBER OF ATTENDEES/DAYS/UNITS

	Attendees	Days	Units
GRAND TOTALS	7,100	40,344.39	322,164

GRADUATE MEDICAL EDUCATION COMMITTEE

COMMITTEE MEMBERSHIP:

Leslie H. Sobin, MD—Senior Executive Service-Chair
 George P. Lupton, MD—Program Director Dermatopathology Residency Program
 Nadine S. Aguilera, MD—Program Director Hematopathology Residency Program
 COL Elizabeth Rushing—Program Director Neuropathology Residency Program
 Teri J. Franks, MD—Program Director Pulmonary Pathology Residency Program
 Vasuki Anandan, MD—Resident/Fellow Representative (July 08-December 08)
 Christopher R. Owner, PhD—Designated Institutional Official
 Carlos H. Moran—Intuition Coordinator
 Mark H. Hovland—Secretary
 Nicole L. Jenkins—Office of Quality Assurance-Secretary
 Frank J. Roberts—Designated Institutional Official
 Tammie Winters—Pulmonary Pathology
 Danny L. Urquhart—American Registry of Pathology

The GMEC meets at least quarterly and maintains written minutes documenting its activities and fulfillment of its responsibilities.

AFIP COMMITMENT TO GME:

Graduate Medical Education at the AFIP is the cornerstone of the mission of education, research, and consultation. The AFIP acknowledges absolute correlation between quality graduate medical education, clinical excellence and scientific development. The AFIP is committed to assisting and expanding its GME programs by providing the necessary educational, financial, human resources to support its GME programs, and ensuring an environment conducive to teaching and higher learning. The program directors and their professional staff accept the greater responsibility for the fellows' professional and personal development wherein they continually seek to improve their own knowledge and skills. Together, the administration, program directors, and the participating fellows strive to enhance their professional ability and sustain an environment that nurtures innovation, creativity, and teamwork.

AFIP ACGME ACCREDITED PROGRAMS:

The AFIP serves a sponsoring institution for 2 pathology subspecialty programs: Neuropathology, and Selective Pathology (Pulmonary Pathology).

HOSPITALS SERVING AS PARTICIPATING INSTITUTIONS TO AFIP ACGME ACCREDITED PROGRAMS:

Children's Hospital of Philadelphia, Philadelphia, PA – Neuropathology
 Office of the Chief Medical Examiner, State of Maryland, Baltimore, MD – Neuropathology
 Johns Hopkins Hospital, Baltimore, MD – Neuropathology

ACTIVITIES:

CHANGE IN DESIGNATED INSTITUTIONAL OFFICIAL

Christopher R. Owner, PhD, Director, Directorate of Clinical Sciences was appointed DIO replacing Mr. Frank Roberts.

Mr. Carlos H. Moran, MS, Chair, Department of Medical Education was appointed Institutional Coordinator.

RESIDENT SUPERVISION:

The GMEC assures that each of AFIP's subspecialty residency programs provides appropriate supervision of its residents in accordance with ACGME's Institutional and program requirements. This is done through the internal review process, reviewing each program's letter of accreditation, reviewing program goals and objectives, resident exit survey conducted by the GMEC at the end of each academic year, and discussion at GMEC meetings.

RESIDENT RESPONSIBILITIES:

Resident responsibilities are written into each resident's training agreement as well as each program's goals and objectives. These documents are reviewed annually and updated as needed. The program directors meet with each resident at the beginning of each academic year to review the program goals and objectives and resident training agreement. The

residents sign their training agreement at this meeting.

RESIDENT EVALUATION:

Residents are usually evaluated after each rotation. At a minimum, each resident is evaluated every six months. Residents are also regularly assessed in each of the six general competencies (patient care, medical knowledge, practice-based learning, interpersonal and communication skills, professionalism, and system-based practice), using an evaluation form developed by the GMEC.

ACGME DUTY HOUR REQUIREMENTS:

The ACGME Duty Hour requirements have been implemented in our five-subspecialty programs and have been published in AFIP Regulation 351-2, Policies and Procedures for the Administration of Graduate Medical Education. The GMEC assesses program compliance with the duty hour requirements through a program letter of accreditation, internal reviews, and discussions at GMEC meetings.

GENERAL COMPETENCIES:

The general competencies have been introduced into all AFIP residency program's curriculum. The programs are currently at various stages in the teaching and evaluation of these competencies. The GMEC is working with the program directors to ensure that the general competencies are fully implemented in all our programs. The general competencies are an open item at our GMEC meetings. During internal reviews detailed information is reviewed on the program's implementation and evaluation of the general competencies.



Bruce H. Williams, DVM, DACVP
Chair
Date of Appointment —1 October 1997

DEPARTMENT OF TELEMEDICINE

MISSION

The AFIP Department of Telemedicine supports and enhances the missions and strategic goals of the Armed Forces Institute of Pathology and the American Registry of Pathology by evaluation and distributed deployment of emerging telecommunications technology within the Institute environment. In this fashion, the department maximizes the cost-effectiveness, speed of delivery, and quality of health care services and educational opportunities provided by AFIP personnel, and serves as a fertile testbed for new and innovative usage of emerging technology.

STAFF

Medical:

Bruce H. Williams, DVM, DACVP

Administrative:

Daniel R. Butler, HMC, Deputy Chair

David Draley, Database and Web Developer/Administrator

Jason Siedor, Support Services Specialist

Kelly Chambers, HM1, Support Services Specialist

Patricia Teague-Pollard, Support Service Specialist

IMPACT

The AFIP's electronic consultation program continues to be the largest of its kind in the world, as well as the most efficient in terms of case turnaround time and scope of services provided. The AFIP telepathology program became the first of its kind to employ virtual slide scanning as a diagnostic tool. Slides are scanned at remote sites, and AFIP staff, upon case submission, transfer the wholeslides to the AFIP servers, decreasing the amount of time AFIP consultants spend viewing and manipulating slides. In addition, the 50-slide loaders associated with deployed systems allow AFIP pathologists to view multi-slide cases, which often include multiple recuts at varying levels, as well as a range of special stains. The end result is an overall improvement of diagnostic specificity, with a decrease in diagnostic deferral from 7% in 2005 to 3% in 2008, and a decrease in request for followup material from 71% in 2005 to 42% in 2008.

In 2005, the Department assumed management of the Army Telepathology program from Walter Reed Army Medical Center. As part of this program, AFIP personnel provide all installation and troubleshooting services for this program. In 2008, AFIP personnel traveled to 10/10 installation sites, to include the 121st General Hospital in Seoul, and Landstuhl Regional Medical Center and Army facilities in Heidelberg, FRG, as well as a mission to the 86th Combat Support Hospital in Baghdad.

In 2008, the Department continued development of "Ask AFIP™", linking the various knowledge bases and collections of case materials and authoritative resources published by AFIP staff (including the 3rd and 4th Series of AFIP/ARP Tumor and Non-Tumor Fascicles) to

provide an innovative “just-in-time” educational experience to over 10,000 pathologists, radiologists and related specialists in both the military and civilian medical communities. Activities in AskAFIP™ in 2008 included fully online registration for all AFIP courses, and CE tracking for all AFIP courses, including traditional classroom-based courses – providing “one-stop shopping” for all AFIP educational products.

A total of four virtual-slide based courses or conferences (the Histopathology Quality Assurance Program, Anatomic Pathology, Genitourinary Pathology and the Registry of Oral and Maxillofacial Pathology Slide Conference) were offered online in 2008. The Department also provided online versions and portals for the American Registry of Pathology’s 3rd and 4th series of the Atlas of Tumor Pathology, as well as the Atlas of Non-tumor Pathology, and the WHO Fascicles on Neoplasia of Domestic Animals. All of the Institute’s online offerings, as well as any associated CME are available to military healthcare providers free of charge. Select offerings, including access to all of our slide-based online courses are available to other government and civilian healthcare providers for a nominal fee.

The Department continues to provide a wide range of virtual slide scanning for a variety of institutional missions, including cases in which contributors would like blocks returned, various intramural research projects, and online consensus conferences.

DIAGNOSTIC CONSULTATION

<i>Cases</i>	<i>Completed</i>
Military	307
Federal	35
VA (35)	
Civilian	58
Total	400

Overall cases showed a 24% increase from the previous year. During 2008, departmental personnel traveled to each installation to ensure that systems had received appropriate upgrades and were in excellent working condition. In addition, systems were removed from three stations and relocated in other facilities with a higher requirement for expert consultation

Average turnaround time for 2008 for consultative cases remained static at 3.0 hours. These numbers represent a continued focus on a militarily-relevant mission and improved overall cost-containment for the telemedicine mission.

EDUCATION

Presentations and Seminars:

Department personnel gave a total of 92 hours of presentations for a total of over 3,750 contact hours.

Courses:

Department personnel participated in a total of 10 CME courses.

Educational Aids:

The Department of Pathology provided updates or original design to 22 AFIP Web sites, provided extensive content to 8 AFIP sites, and provided extensive programming and editing services to the Digital Case Repository and online book offerings of AskAFIP™.

54 editions of the ARP 3rd and 4th series Tumor Fascicles as well as the Non-tumor fascicles, WHO Fascicles on Neoplasms of Domestic Animals, and 1 special publication, the Atlas of Gastrointestinal Endoscopy and Endoscopic biopsy were made available to online subscribers of the AFIP’s Online Pathology Services.

Telemedicine Exhibits:

- 1. Mar 2008: USCAP Annual Meeting, Denver, CO (Draley, Siedor)
- 2. June 2008: Association of Military Surgeons of the United States (Butler, Siedor)
- 3. October 2008: International Academy of Pathology, Athens, Greece (Williams, Butler, Draley)
- 4. November 2008: Association of Military Surgeons of the United States, San Antonio TX (Teague-Pollard, Siedor)

Presentations:

1. March 2008: Washington DC, Gross Morbid Anatomy of Diseases of Animals: "Macroscopic Description in Veterinary Pathology, Pathology of the Dog and Cat," BH Williams.
2. March 2008: Scottsdale AZ, American Pathology Foundation: "Roadblocks in Telemedicine Implementation," D Butler.
3. March 2008: Dublin IRE, AFIP Descriptive Veterinary Pathology Course: "Macroscopic and Microscopic Description in Veterinary Pathology," BH Williams.
4. April 2008: Baghdad Iraq, "Pathology of Small Ruminants/Cytology for Anatomic Pathologists."
5. May 2008: Seoul, Kwangju, Daegu City, ROK, Charles Louis Davis Foundation, "Gross Pathology of the Canine," BH Williams.
6. May 2008: Univ. of Illinois CVM, "Basics of Histologic and Ultrastructural Description," BH Williams.
7. June 2008: Washington DC, AFIP Descriptive Veterinary Pathology Course, "Macroscopic and Microscopic Description in Veterinary Pathology," BH Williams.
8. June 2008: Washington DC, "AFIP Weekly Professional Staff Conference," BH Williams, D Draley, J Siedor.
9. July 2008: St. Pete's Beach FL, C.L. Davis Foundation General Pathology Review Course, "Ultrastructural Description/Gross Pathology of the Dog," BH Williams.
10. July 2008: Cambridge University, UK, British Society of Toxicologic Pathology, "Pathology of the Ferret/Pathology of the Rabbit," BH Williams.
11. August 2008: Bethesda, MD, Pathology of Laboratory Animals Conference, "Pathology of the Ferret/Pathology of Guinea Pigs, Hamsters, and Gerbils."
12. October 2008: Athens, Greece, International Academy of Pathology: "Reinventing Consultation and Education at the AFIP," BH Williams.
13. October 2008: Pittsburgh PA, International Ferret Congress, "Reading a Pathology Report – Pathologist-Clinician Communication," BH Williams.
14. November 2008: San Antonio TX, Annual Conference of the American College of Veterinary Pathologists: "Basics of Digital Slides," ACVP, BH Williams.
15. December 2008: LSU College of Veterinary Medicine: "Basics of Gross and Histologic Description," BH Williams.

RESEARCH***Publications:***

Departmental staff prepared six course syllabi during the year 2008.

Projects:

One research protocol was closed in 2008 – UBYG – Telepathology Consultation at the AFIP, which resulted in 5 articles on telepathology and digital imaging.

Collaborators:***Military/Federal:***

1. Department of Pathology, Keesler AFB: Feasibility Study of Telepathology in the Air Force
2. NASA: Feasibility study of virtual slides in aerospace research
3. USUHS: Feasibility of virtual slide study sets in undergraduate education
4. NCI: Familiar testicular cancer: a virtual consensus conference

Civilian:

1. American Registry of Pathology: Online Fascicles of Tumor Pathology.
2. Aperio Inc: Feasibility Study of Virtual Slide Scanning in Consultative Practice
3. Information Manufacturing Corporation: AskAFIP™

Interdepartmental:

1. Department of Genitourinary Pathology: Familial Testicular Neoplasia
2. Department of Hepatic and Gastrointestinal Pathology: Fibrosis in patients with infectious hepatitis
3. Department of Radiologic Pathology: Migration of RADPATH onto AskAFIP™

PROFESSIONAL ACTIVITIES

Official Trips

1. February 2008: Ft. Benning, GA, System upgrade/maintenance, J Siedor.
2. February 2008: Kampala, UG, System install, D. Butler
3. March 2008: Ft. Lewis, Tripler Army Medical Center, System upgrade/maintenance, J Siedor.
4. April 2008: Seoul, ROK, System upgrade/maintenance, DR Butler, J Siedor.
5. April 2008: Baghdad, Iraq, System upgrade/maintenance, BH Williams, DR Butler
6. May 2008: Landstuhl, Heidelberg, FRG, System upgrade/maintenance, DR Butler, J Siedor.
7. May 2008: Kampala, UG WAN install – DR Butler
8. June 2008: Ft. Sam Houston, TX, Ft Knox KY, Ft Polk LA, Ft Campbell KY, Ft. Sill Oklahoma, System upgrade/maintenance, DR Butler, J Siedor.
9. July 2008: Seoul ROK, Heidelberg Landstuhl FRG - System upgrade/maintenance, DR Butler.
10. July 2008: Ft. Jackson SC, System install, D Draley.
11. August 2008: Ft. Sill OK, System repair, J Siedor.
12. September 2008: Kisumu, Kenya, System Install, DR Butler
13. September 2008: Ft. Hood TX, System upgrade/maintenance, J Siedor.
14. September 2008: Kampala, UG, System Install, DR Butler.
15. October 2008: Kampala UG, Mombasa Kenya, Histology school development program, DR Butler.
16. November 2008: Vista CA, Advanced training Aperio digital imaging system, DR Butler, P Teague-Pollard.
17. December 2008: Chicago IL, RSNA Annual Meeting, DR Butler, D Draley.
18. December 2008: Allentown PA, Digital imaging product evaluation, DR Butler.

Committees:

1. Oversight Committee on Continuing Medical Education, BH Williams.
2. IACUC Committee, BH Williams.

Offices/Committee Memberships in National or International Societies

1. President, C.L. Davis Foundation for the Advancement of Veterinary Pathology, BH Williams.
2. Convenor, Telemedicine Symposium, International Academy of Pathology, BH Williams.
3. Convenor, Emerging Technology Symposium, American College of Veterinary Pathology, BH Williams.
4. Member, Education Committee, American College of Veterinary Pathologists, BH Williams.

Manuscripts Reviewed:

Members of the department reviewed 22 articles for the following professional journals:

1. *Veterinary Pathology*, BH Williams.
2. *Human Pathology*, BH Williams.
3. *Journal of Veterinary Diagnostic Investigation*, BH Williams.



Ann M. Nelson, MD
Chair
Date of Appointment — October 2007

DEPARTMENT OF SCIENTIFIC LABORATORIES

STAFF

Medical:

Ann Nelson, MD, VA

Scientific:

Debra McElroy, DAC, Chief

Julia Wilson O'Loughlin, DAC, Publication

Alexander Kaprelyants, MD, PhD, DSc, ARP, Quality Assurance (A)

Administrative:

Raheema Al-Baqi, VA, Administrator

IMPACT

The Department of Scientific Laboratories was established in 1988 as a core component of AFIP's mission of consultation, education and research. The Divisions of Scientific Laboratories, Immunohistochemistry, Molecular Biology and Biophysics as well as the specialty laboratories provide the one of the largest varieties and volumes of diagnostic tests available anywhere in the world. Over the past year we have continued to expand our procedures to meet the requirements of the consultation services to provide state-of-the art techniques. Through several innovative programs, we have reduced turn-around-time, improved quality, and are creating an on-line version of the Histology Manual. Several new initiatives were developed to meet the increasing need to serve military and veterans programs related to Traumatic Brain Injury.

The mission of the Department of Scientific Laboratories is to provide technical, consultative, and scientific services to the Departments of the Armed Forces Institute of Pathology. Services include basic and advanced histology techniques, scanning and transmission electron microscopy, immunohistochemical tissue analyses, molecular pathology and research in biophysics of tissue fixation and analysis. The Department provides basic and advanced training in histology techniques to military and civilian personnel through the Tri-Service School of Histotechnology and the Annual Histopathology Techniques Seminar, respectively. All efforts are designed to ensure the highest medical and investigative science.

The Web-page of the Department of Scientific labs was generated and established on the AFIP web-site (https://lee.afip.osd.mil/AfipSciLabs/App_Asp/Default.aspx). The "Quality System" directory include sub-directory for "Standard Operating Procedures," for "Training" and for "Document forms." This information with latest update is available for all and can be use as a "quick reference" for the daily operations and for training purposes.

The Divisions of Scientific Laboratories and Immunohistochemistry were reorganized to include Acquisitions Lab, Grossing Lab, Microtomy, Special Stains Lab, General Immunology, Special Immunology, Neuromuscular, Scanning and Transmission Electron Microscopy, Tri-Service School of Histotechnology, Tissue Micro Array Lab, and Glassware. The laboratories are organized to allow a STAT laboratory to handle urgent consultative cases, and a Research and Education Laboratory to provide services for research and education projects. This organization has significantly reduced turn-around time and distributed the workload more equitably

throughout the laboratories.

The Division of Molecular Pathology currently occupies newly renovated laboratories and had expanded to include a FISH (fluorescent in-situ hybridization) laboratory.

The Division of Biophysics continues to employ new technologies to advance the practice of research and diagnostic pathology.

GOALS

1. To support the United States Department of Defense's readiness for joint operations.
 - a. Support the Institute's staff in programs aimed at the increasing readiness for joint operations.
2. To assist in the provision of top-quality, cost effective health care benefits and services
 - a. Continue to provide micro-slides of excellent diagnostic quality from cases that meet agreed –upon restrictions within established turnaround times.
 - b. Facilitate minimum specimen turnaround time (24 to 48 hr.), while maintaining a superior product.
 - c. Provide timely technical and scientific services specific to the needs of each department's consultative mission.
 - d. Expand services to assist Tri-Care.
 - e. Continue the laboratory renovation program to improve quality, safety and efficiency of laboratories
 - f. Pursue methods that conserve resources and eliminate duplication of tasks.
 - g. Continue to implement quality control and improvement.
 - h. Continue to review and update Quality Assurance Program.
 - i. Implement responses to CAP accreditation.
3. To assist in the development of military and civilian health care leaders.
 - a. Tri-Service School of Histotechnology
 - i. Provide high-quality training by Tri-Service School of Histotechnology by recruiting interdepartmental and interdivisional faculty from among the department and AFIP.
 - ii. Support the recruitment and selection of civilian and military students to maintain a maximum student body and an appropriate military/civilian mix.
 - b. Education/Courses
 - i. Facilitate the presentation and quality of academic courses.
 - ii. Support increased attendance, sponsorship, and offering of off-site courses.
 - iii. Expand military and academic training for non-prior-service (NPS) students attending the new course.
 - iv. Support the AFIP's production of an interactive CD-Rom for Basic and Advanced Laboratory Methods on Histotechnology and Immunohistochemistry.
 - v. Continue to prepare study sets of superior quality.
 - vi. Expand the current continuing education program to include outside speakers on various topics.
 - vii. Train more visiting technicians and pathologists.
 - viii. Revise course chart, lesson plans, and other instructional materials to reflect newly expanded program.
 - ix. Cross-train transmission electron microscopy technician in the use of analytical scanning microscopy methods and facilities.
 - x. Cross-Train department personnel in electron microscopy and immunohistochemistry technology.
 - xi. Present lectures in transmission electron microscopy and analytical scanning microscopy to the AFIP staff and other personnel.
 - xii. Build a reference library for the transmission electron microscopy laboratories.
 - xiii. Ensure that all technician become Histology Technician Certified.
 - xiv. Implement College of American Pathologists (CAP) program for training and proficiency testing.
4. To develop innovations and validate applications of new technologies.
 - a. Support research protocols, presentations, and publication of results.
 - b. Assist Institute investigators in their development of innovations and new technologies.
 - c. Research and develop new methodologies that are safer and reduce case turnaround time.

- d. Enhance and use new technology in Transmission Electron Microscopy.
 - e. Evaluate state-of-the-art equipment that will enhance the application and diagnostic evaluation of consultative cases.
 - f. Refine methodologies for antigen detection, automation, and more sensitive detection methodologies.
 - g. Utilize molecular and immunology techniques for cellular proliferation, cell signaling, oncogene and suppressor gene products, and adhesion molecules.
 - h. Bring online an expanded antibody menu performed in nontraditional fixatives.
 - i. Institute a new lab development committee and protocol for AFIP staff to bring on new tests in Scientific Laboratories.
5. To develop and implement new techniques and applications for consultation, education and research in biophysics (see Division report)

Work load :

In 2008, a total of 25,236 work orders were completed, requiring the following procedures and special stains:

Blocks cut	107,092
H&E Stains	62,443
Special Stains	20,397
Unstained Cut	103,718
Imuno Cut	166,277
Immuno Stained	62,559
Plastics	90
Slide Repairs:	621
Decals	245
X-Rays	86
Molecular	1,180
Total Slides	11,759

Gross specimens

		PB
Vet	1530	30
Brain	107	12
Eyes	95	10
Neuromuscle	851	48
Total number	2556	

Deployments:

Month	Deployment Days	# of Cases	Sci Labs Personnel	Pathologists	Partial
January	18	58	3	35	0
February	18	45	6	31	0
March	16	50	7	31	0
April	25	75	6	42	0
May	15	37	8	26	0
June	15	57	15	32	0
July	16	41	11	27	0
August	17	46	8	27	0
September	20	51	13	23	0
October	16	35	12	25	0
November	11	22	4	16	0
December	13	24	15	19	0
	200	541	108	334	0
			0.54	1.67	

EDUCATION

Presentation and Courses:

Laboratory staff presented 60 didactic hours to participants in the Tri-Service School of Histotechnology course. In addition, several staff members lectured at state and regional professional meetings. Division staff made presentations at Weekly Professional Staff Conference in 2006.

Dr. Nelson has an appointment as Adjunct Professor of Pathology, Virginia College of Osteopathic Medicine.

Training:

1. Visiting pathologists and technologists received over 1,500 hours of on training in a variety of laboratory techniques, including eye histotechnology, special staining methods for infectious organisms, and Warthin-Starry procedures for melanin and bacteria.
2. Orientation and advanced training were provided to 4 civilians and 25 incoming military personnel.
3. Histotechnology Conference - 34th Annual NSH Symposium/Convention, Pittsburgh, PA (we had 7 personnel attend).
4. Forensic Course – Principles of Forensic Pathology (5185), November 10–14, 2008, Rockville, Maryland (we had 4 people attend).

Educational Aids:

1. Our laboratories prepared thousands of microslides for AFIP pathologists, consisting mainly of teaching and study sets to be used at professional meetings.
2. The AFIP manual of histotechnology is being formatted as an electronic manuscript that will have embedded instructional video clips and a digital atlas of stains and troubleshooting.

RESEARCH

Publications:

Articles on modifications to histopathology laboratory procedures were submitted for publication in all editions of the AFIP Letter.

Projects:

Our laboratories provided technical support for all approved research projects. Cost estimates are now prepared based on the College of American Pathologists' workload unit costs, which include technician time, materials, and equipment.

This year, several manufacturers were invited to demonstrate technical equipment that has significantly advanced histology microslide production, including robotic stainers and coverslipppers, improved warming tables, and cryostats. These items were evaluated by department staff and were available for inspection and trial by AFIP departments.

TRI-SERVICE HISTOTECHNOLOGY SCHOOL

Lisa Myer, MSGT, Superintendent
Superintendent
Date of Appointment — June 2005

STAFF

Scientific and Education:

Chasity Arabie, HM1, Histopathology Technician
(D) George Barbour, HM1, Histopathology Technician
Denise Griggs, SSGT, Histopathology Technician

IMPACT

The school trained 8 histotechnologists (6 Air Force, 1 Navy, 1 civilian). The military trainees were deployed to MFTs, NMC Bethesda, Malcolm Grow Medical Center, WRAMC, and Dover

Port Mortuary.

The civilian trainee was hired to support the Scientific Laboratory aspects of the AFIP Traumatic Brain Injury Project.

Project Description for Relocation from AFIP:

Create a co-located medical education and training facility supporting Tri-service training requirements with classroom and applied instruction facilities in support of BRAC 2005 re-stationing at Fort Sam Houston, Texas. The Total project cost, as programmed for all four buildings, is \$225 million, based on the scope outline in the DD 1391. Building three includes the following academic course:

Histopathology Apprenticeship, Phase I

Project Location:

Fort Sam Houston, San Antonio, Texas

Background:

A programming charrette for this project was conducted 13–16 November 2007 and 27–29 November 2007, at the El Tropicano Hotel in San Antonio, Texas. Members of the following organizations participated in this workshop:

METC TIO
 METC Bldg 3 Subject Matter Experts (SMEs)
 JMFO
 NSHS Portsmouth and San Diego
 AMEDD C&S

DIVISION OF SCIENTIFIC LABORATORIES

Debra McElroy
 Chief

STAFF

Scientific:

Frank Avallone, DAC, Technologist/Lab Lead
 Ingrid Jones, DAC, Histopathology Technician/Lab Lead
 (D) Langston Lim, ARP, Histopathology Technician/Lab Lead
 Warren McNeil, DAC, Histopathology Technician/Lab Lead
 Myra Miller, DAC, Histopathology Technician/Lab Lead
 Barbara Norfleet, DAC, Histopathology Technician/Lab Lead
 Verna Pinkett, DAC, Histopathology Technician/Lab Lead
 (A) Mann Leong Son, DAC, Histopathology Technician/Lab Lead
 Ives Valenzuela, DAC, Histopathology Technician/Lab Lead
 Rose Andan, SRA, Histopathology Technician/TMA Lab
 Juan Basset, ARP, Histopathology Technician
 Betty Beal, VAMC, Histopathology Technician
 Clifford Bernard, SSGT, Histopathology Technician
 TaShanda Butler, SSGT, Histopathology Technician
 Robert Calvo, HM2, Histopathology Technician
 (A) Michael Campbell, ARP, Histopathology Technician
 Lenci Carter, DAC, Histopathology Technician
 Mel Castro, DAC, Histopathology Technician
 Lloyd Dallas, DAC, Histopathology Technician
 Mary Dyson, ARP, Histopathology Technician
 Rick Figueroa, SSGT, Histopathology Technician
 Alicia Fuller, SSGT, Histopathology Technician
 Joe Golden, TSGT, Histopathology Technician
 Elizabeth Harvel, ARP, Histopathology Technician

Zehaitu Harvey, DAC, Histopathology Technician
(A) Terrica Johnson, DAC, Histopathology Technician
(A) Alexander Kaprelyants, MD, PhD, ScD, ARP, Histopathology Technician
(A) Susan Matthews, SSGT, Histopathology Technician
Kisses Martinez, DAC, Histopathology Technician
Denise Negron, HM3, Histopathology Technician
Oliver Onyebuchykwu, DAC, Histopathology Technician
Efrain Perez-Rosario, ARP, Histopathology Technician
Juanita Rogers, ARP, Histopathology Technician
Stacia Roundtree, HM2, Histopathology Technician
Blair Slaughter, ARP, Histopathology Technician
Blondell Smith, DAC, Histopathology Technician
Stacey Tamer, DAC, Technologist
Michelle Turner, DAC, Histopathology Technician
Michael Vick, HM2, Histopathology Technician
Muhammed Waheed, ARP, Histopathology Technician
(A) Zengfeng Wang, PhD, ARP, Histopathology Technician
Lin XI, ARP, Histopathology Technician
Curtis Young, HM1, Histopathology Technician
Denise Young, ARP, Technologist

Administrative

Shaquita Massey, ARP, Acquisition Clerk/Lead
Roneice James, ARP, Acquisition Clerk
(A) Elizabeth Myers, ARP, Acquisition Clerk

IMPACT

The Division of Scientific Laboratories provides acquisition and processing of specimens for routine and special procedures as required by the pathologists of the Departments of the AFIP. The Acquisitions section is the central processing location. In the past few years, all lab requests for consultation cases are initiated by the requesting pathologist electronically using the Pathology Information Management system (PIMS). Lab requests and case material for processing are picked up on a regular basis and brought to the central lab area. Acquisitions accept, verifies and send requests and material to specific labs for testing. This centralized system has decreased loss of materials and allows location of case material within the laboratories.

Several changes have been made over the past year to improve quality and efficiency of all aspects of laboratory activity. One of the major changes was the reconstruction of the laboratory interface with the Pathology Information Management System (PIMS). The objective of adding the Microtomy laboratory to PIMS is to capture real turn-around times as the metric graphics. In order to accomplish this, we have all laboratories enter data into PIMS for each work order that is completed by the technician. This allows us to show the actual time from when the work order is started (cut by technician) to the test completion in Microtomy, Special Stains, and Immuno laboratories and when the finished products are sent back to the acquisitions section for delivery. The turn-around time since the implementation of this system has decreased by 66% with only 5% falling outside the prescribed limits. Scientific Laboratories also provides a same day service for critical cases if requested by the contributing pathologist through the AFIP consultant.

Quality Assurance:

Laboratory personnel served on 3 CAP Inspection Teams in 2008 – Nobody served on CAP inspection in 2008 (we have 3 deficiencies in the Department from 2007 CAP inspection).

Delegate to the National Society of Histotechnology – 34th Annual NSH Symposium/Convention, Pittsburg, PA (we had 7 personnel attend).

Quality Assurance Committee – Debra McElroy

Safety Committee – Debra McElroy

Biosafety Committee – Debra McElroy

During the past year, we have endeavored to improve of the quality of service and exceed the quality standard regarding adherence to the College of American Pathologists (CAP) requirements and regulations. The main goal is to effectively generate and implement the Quality Assurance (QA) actions and guidelines for daily department service quality improvement. We

have undertaken new initiatives to improve the documentation and operation process. The Quality Management/Improvement Program was created to provide guidance for the quality improvement of the laboratory services for all laboratories of the Department in compliance with AFIP Regulation (AFIP Reg. 40-68), CAP and CLSI. The program contains planned systematic actions (Monitoring, problem identification and corrective action; Document control; Training improvement and competence assessment) for an objective assessment of the quality improvement of the daily operations.

As a first basic action for the Quality System development, the QA record improvement was done by implementation of the new Standard Operating Procedure (SOP) for Good Documentation Practice (GDP) and error correction (SOP#SL-G-08-003). All laboratory supervisors were trained (November, 2008) on this SOP for to be more efficient in the QA/QC record of daily laboratory operations.

Standardization of the all laboratory activities and documentation was an important part of the Quality Improvement in 2008. The existing Standard Operating Procedures were reviewed to include more technical details of process description for avoid operation errors (human and instrumentation), prevent recurrence, time saving and makes it easy for the operators and for employees cross-training. The SOP review was done also, to prevent “disconnection” between existing SOP and current lab practice, because each laboratory activity must be done only by approved specific SOP, when all changes have to be done on timely manner and they should be “reflected” in the SOP. The new SOP format with the unique code number and other additional information was developed, approved and implemented for the update of existing SOP and for the new SOP as well. The new SOP (SOP# SL-S-08-001) with a lot of technical details was created for the immunohistochemistry laboratory (LO3), which executes over 150 different kinds of clinical IHC tests by manual immunohistochemistry technique. The code/numeric system was created for departmental SOPs and for other related documentation as a QA document control improvement action. New training record format for employee training or retraining was generated. Two new forms (for group training and self training) for “specific” training for each work area, training for all, when changes affect each employee and training for the new employees were implemented.

DIVISION OF IMMUNOHISTOCHEMISTRY

Wei-Sung Chu, MD
Co-Chief, Technical
Date of Appointment – January 2003

Aaron Auerbach, MD, MPH
Co-Chief, Administrative
Date of Appointment – January 2007

STAFF

Medical:

Wei-Sung Chu, MD, DAC
Aaron Auerbach, MD, MPH, DAC

Scientific:

Zengfeng Wang, PhD, ARP
(others listed above under Scientific Lab Division)

IMPACT

The Automated Immunohistochemistry Lab (LO2), equipped with 8 Ventana automatic immunohistochemistry (IHC) staining machines (6 Benchmarks and 2 Benchmark XTs), routinely runs 64 antibodies with an average of 150 immunostaining reactions daily and over

3000 immunostaining reactions monthly. Tremendous efforts have been made in streamlining the operations for LO2; problem areas affecting the efficiency of function in LO2 were identified and solved during the first quarter of 2008. At present, the time required for daily work load has been significantly shortened and number of operating personnel has been reduced. The assay quality is consistent and complaints from pathologists are reduced to close to zero.

We added a new Leica Autoimmunostainer to LO2. The Leica machine is designed to use an open system which accepts any manufacturer's reagents. It allows us to perform staining assays that otherwise cannot be performed on the Ventana machines, such as double immunostaining and quick staining. We also use the Leica machine to perform "rush" cases.

The Special Immunohistochemistry Laboratory (LO3) currently runs over 90 antibodies tailored by manual staining for special needs of pathologists. The L3 also has a function of developing new antibody assays to add on service list for both L2 and L3. The L3 section also carries out Chromogenic In Situ Hybridization (CISH) for a list of gene markers (c-myc, and 1p19q). Starting this year we have added new antibodies to the following proteins, Mammaglobin, Oct3/4, P16 (new clone switch), CK8/18 (new clone switch), CK8/18 (vender switch), Her2/new (new clone switch), GPC3, IgG4, D2-40, CD63, and TLE1, to the regular service list. Antibodies to MLH1, MSH2, MSH6, Fast Myosin, and Slow Myosin have been acquired and will be tested and validated before adding to the regular service list. We are currently identifying proper antibodies and protocols for Cyclin A and Cyclin E IHC.

The Hematology Laboratory (LO7)

The Hematology Laboratory (LO7) currently runs over 70 antibodies, most of which are centered around diseases of hematopoietic disorders. Starting this year, PD1, CXCL13, TCL1, and FOXP3 are new antibodies which expand our panel for T cell lymphomas. AID is another antibody which we have now use, which marks germinal center cells. Bob.1 is a new B cell marker which is used in conjunction with OCT.2 in the differential diagnosis of a B cell lymphoma and Hodgkin lymphoma

RESEARCH

1. *Ultrasound facilitated tissue fixation technology.* Development of the (US-FFPE) has progressed significantly in the year 2008. A prototype US-FFPE machine has been developed which can carry out the whole formalin fixation and paraffin embedding process in less than 1 hr. In-depth experiments have been performed to characterize molecular and immunological properties of tissues prepared by the US-FFPE technology.

2. *Extraction and quantitation of proteins and nucleic acids from FFPE tissues.* We have continued our study using the NDME extraction technology developed by our group; we have greatly increased extraction efficiency of proteins and nucleic acids from FFPE tissues. The detection sensitivity of protein antigens from FFPE tissue extraction lysates have been increased to the ng/ml level.

3. *Molecular Imager VersaDoc MP4000 System, BioOdyssey Calligrapher MiniArrayer, and Nuance VX Multispectral Imaging System.* We have purchased the above state-of-the-art instruments. The first two systems will be used in the high throughput analysis of protein and nucleic acids extracted from FFPE tissues. The third system will be used to establish multiplex immunohistochemistry assay with superimposable images.

Publication:

One article is in press in *Modern Pathology*.

Pending grant proposals:

In 2008, we have put tremendous efforts in soliciting outside funding. The following proposal is pending:

"Quantitation of Biomolecule Integrity in Conventional and Ultrasound-Facilitated Formalin-Fixed and Paraffin-Embedded Tissue Specimens" - A Subcontract Proposal in Response to NCI/SAIC Solicitation S08-280.

Special Research and Development Section

Immunohistochemistry (IHC) is the 2nd H&E for pathologists. This is especially true for AFIP. In 2008, the general immunuo labs implemented a series of changes to improve clinical service.

1. The STAT case service was developed by assigning specific personnel and prioritizing work flow with the purchase of a new autoimmune stainer from Leica. Since setting up this

arrangement, we have dealt cases from Departments of Pulmonary, Soft Tissue, Derm and Genitourinary Pathology for cases that came as an emergency or had scarce material requiring special handling.

2. In order to facilitate the doctors' ordering from PIMS, we have developed 26 immunopanel for the Departments of Pulmonary, Soft Tissue, Heme, Neuromuscular, and GYN/Breast Pathology.
3. We upgraded the current Ventana autoimmuno staining system from software to detection system to speed the turn-around time and avoid staining errors.
4. The Ventana detection kits were upgraded from 1st generation to 3rd generation protocols (using polymers to avoid endogenous biotin staining).
5. Development of double immune-staining platform to accommodate education, and clinical service (e.g. Lambda/Kappa, cytokeratin/S100, Pax5/CD markers). This is especially critical when insufficient unstained slides are available to make a diagnosis and can even be done by restaining HE slides.
6. Bring up new antibodies to enhance clinical diagnosis, and support institute wide research projects. Without effective and strong development and research to translate the scientific and industrial progress into AFIP clinical service, the AFIP will not be able to excel as the premier pathological reference center. We have added more than 20 new antibodies for clinical service such as MSI (microsatellite instability), VZV (varicella zoster virus), Mammaglobin, Oct3/4, GPC3, IgG4, D2-40, CD63, DOG1, SOX9 and TLE1.
7. Collaborate with intramural and extramural researchers for research grants and publications.
 - a. Sox 9 and Osteocalcin: markers for chondrogenesis
 - b. PDGFR: a biomarker for KIT-negative gastrointestinal stromal tumors (GISTs) from soft tissue neoplasms of the digestive tract.
 - c. AID and B cell marker co-immunohistochemistry staining: AID is involved in somatic hypermutation and class switch recombination of stimulated B lymphocytes
 - d. Smooth muscle actin immunostaining research to analysis the source of nonspecific nuclear staining with different antigen retrieval

NEW ANTIBODIES BROUGHT-UP FOR CLINICAL AND FOR RESEARCH

I. 17 New antibodies added to regular clinical service in 2008

Antibodies	PB/Drs Inquired	Purpose	Description
Fast Myosin			
Slow Myosin	PB12/Drs Rushing and Horkayne	Clinical service	Neuromuscular diagnosis
Oct 3/4			
Mammaglobin	PB15/Dr. Vinh	Clinical service	Breast Carcinoma diagnosis
VZV	PB34/Dr. Wear	Clinical service	Varicella zoster virus (VZV) diagnosis
MLH1 MSH2 MSH6 PMS2	PB25/PB07 Drs. Dow and Auerbach	Clinical service	Microsatellite marker for colonrectal tumor prognosis
PD1 CXCL13 TCL1 FOXP3	PB07/Dr. Auerbach	Clinical service	New marker for T cell lymphomas sub-classification
Myogenin	PB02/Dr. Miettinen	SOP optimization	Rhabdomyosarcoma diagnosis

ANTIBODIES	PB/DRS INQUIRED	PURPOSE	DESCRIPTION
Bob1	PB07/ Dr. Auerbach	Clinical Ab	B cell differentiation marker
Glut 1	PB02/Dr. Miettinen	Clinical service marker	Tumor hypoxia prognosis
Dog1 (Novocastra)	Pb02/Dr. Miettinen Clinical	Research to diagnosis	Noval biomarker for GIST

II. 33 New antibodies has collaboratively studied and results in four paper submissions in 2008

AID AID/CD20 AID/Pax5	PB07/Dr. Aguilera	Research	Study immunoglobulin (Ig) class switch recombination and somatic hypermutation during pathogenesis of lymphomas
P27	PB3/Molecular Path Drs. Goodman/Wang	Research project PBC	Study MMTV viral protein expression of transgenic mouse tissue and human
Anti-Glutamine Synthetase HSP70 Fatty acid Binding Protein antibody Serum Amyloid A	PB3/Dr. Goodman	Clinical service	Subclassification of hepato-cellular carcinomas
PDGFR	PB02/Dr. Miettinen/ Dr. Lasota	Research project ment and research	GIST (gastrointestinal stromal tumors) develop-
MASH1	Pulmonary (PB9)/ Drs. Franks/Shilo	Clinical antibody carcinoma	Marker in differentiating pulmonary small cell carcinoma from Merkel cell
aPKC zeta	TMA/Dr. Rushing	Collaborative research	Polarity signaling pathway and some human gliomas
Cyclin A Cyclin E	PB07/Dr. Auerbach	Research to clinical liver tumor	Pronostic markers for several tumors such as breast tumor,
Sox9 Osteocalcin	PB02/Dr. Fanberg-Smith	UBSU/ Collaboration/ Dr. Rushing for summer students	Investigate pathogenesis of chondrosarcoma

ANTIBODIES	PB/DRS INQUIRED	PURPOSE	DESCRIPTION
GABA receptors (19 antibodies)	TMA /Dr. Sanberg, collaboration with USHUS	TMA service ependymoma	Analysis of neurotransmitter gamma-aminobutyric acid receptor expression in

III. 25 New antibodies were on the pipeline for 2009

Caveolin 3 Ini 1	Pb12/Drs. Rushing/ Sandberg	Clinical Antibody	Malignant rhabdoid/atypical teratoid tumors
IHH DHH SHH patched Gli2	Pb3/ Dr. Goodman/ Dr. Wang	Research	Development of alcoholic cirrhosis
Gp116 P41/38 P38 P37 OHV HHV6	PB34/Drs. Nelson/ Dr. Auerbach	Research and clinical service	HHV6 and HIV progression study
Pax3	PB12/Dr. Rushing	Research and development	Uveal melanoma study
Transthyretin Kappa free light chain Lambda free light chain Fibrin II CD61	Cardiovascular/Dr. Burke	Clinical service	Cardiovascular cancer diagnosis
Amyloid A Amyloid P Transthyretin (Pre-albumin) B2-microglobulin ANP	Envir. and Tox. Pathology/ Dr. Lewin-Smith	Clinical antibody	Subclassification of amyloidosis

DIVISION OF MOLECULAR PATHOLOGY



Guanghua Wang, MD
Division Chief
Date of Appointment — July 1, 2007

STAFF:

Guanghua Wang, MD, Division Chief (starting July 1, 2007)
Minqi Wei, MD, Research Biologist
Qi Liang, PhD, Research Scientist
Daisy Johnson, BS, Medical Technologist
(A) Shimin Zhang, MD, PhD, Senior Research Scientist
(D) Elizabeth Cox, MS (Until November, 2008)
(D) Kofi Kyeremateng, BS, Research Technologist (Until October, 2008)

Administrative:

Myra Washington, Secretary

MISSION:

Division of Molecular Pathology is comprised of two laboratories, Molecular Diagnostics Laboratory (PCR based) and Laboratory of Fluorescence In-Situ Hybridization (FISH). The Division provides consultation, research and education in molecular pathology. The division's focuses are to provide prompt molecular testing for surgical pathology consultation, develop new molecular assays for surgical pathology departments, and actively collaborate with pathologists and other scientists in research using molecular techniques. The division also explores new areas in molecular pathology for future development at the AFIP.

CONSULTATION:

The Division performed 1,541 molecular genetic consultation tests in 2008.

EDUCATION:

The Division hosted 3 civilian and 2 military residents for their molecular pathology rotation for a total of 60 training days.

RESEARCH:

Publications:

1. Abdul-Al HM, Makhlof HR, Wang G, Goodman ZD. Glypican-3 expression in benign liver tissue with active hepatitis C: implications for the diagnosis of hepatocellular carcinoma. *Hum Pathol*. 2008 Feb;39(2):209-12.
2. Gonzalez-Cuyar LF, Tavora F, Zhao XF, Wang G, Auerbach A, Aguilera N, Burke AP. Angiolymphoid hyperplasia with eosinophilia developing in a patient with history of peripheral T-cell lymphoma: evidence for multicentric T-cell lymphoproliferative process. *Diagn Pathol*. 2008; 3: 22.
3. Wang G, Auerbach A, Wei M, Dow N, Barry TS, Hodge L, Schaffer D, Sobin LH, Aguilera NS. t(11;18)(q21;q21) in extranodal marginal zone B-cell lymphoma of mucosa-associated lymphoid tissue in stomach: a study of 48 cases. *Modern Pathology*. doi:10.1038/modpathol.2008.155; Published online. 26 September, 2008

DIVISION OF BIOPHYSICS



Jeffrey T. Mason, PhD
Chief
Date of Appointment — 1 May 2004

STAFF

Scientific:

Jeffrey T. Mason, PhD, Chief, Division of Biophysics (GS)
 Kimberlee Potter, PhD, Director, AFIP Magnetic Resonance Imaging Facility, Associate
 Chief, Division of Biophysics (ARP)
 Junkun He, PhD, Research Associate (VA)
 David L. Evers, PhD, Research Associate (VA)
 Carol B. Fowler, PhD, Research Associate (VA)
 Robert E. Cunningham, MS, Biologist and Histologist (GS)
 Ingrid E. Chesnick, BS, Technician/Student (ARP)

IMPACT

Biotoxin and Disease Biomarker Detection: We are developing ultra-sensitive field-deployable and clinical assay systems for detecting biological toxins and disease biomarkers with high specificity and sensitivity. We have developed an assay called liposome polymerase chain reaction (LPCR) for the detection of toxins in biological and environmental specimens. Using this assay format, we have developed the most sensitive test currently available for the detection of botulinum neurotoxin type A. This assay is 10,000-times more sensitive than the mouse bioassay for the detection of botulinum toxins. This research is critical to homeland security, the protection of military personnel in combat or peacekeeping operations, and the forensic analysis of terrorist incidents. A patent application for our assay method was prepared and is under evaluation by the U.S. Patent and Trademark Office. This work was funded by a grant from the Peer Reviewed Medical Research Program (PRMRP) supplement to the US Army Medical Research and Materiel Command (USAMRMC). We were awarded a grant from the Veterans Health Administration in 2007 to further develop this assay and to develop an ultra-sensitive activity assay for botulinum toxins. The goal of this work is the development of a validated clinical assay to supplement or replace the mouse bioassay for the detection of botulinum toxin. During 2008, we have modified the LPCR assay format so that it can detect disease biomarkers, such as carcinoembryonic antigen (CEA), Clostridium difficile toxin A, and the HIV-1 core protein p24 in human serum. This method, which uses antibodies, is called the immunoliposome polymerase chain reaction (ILPCR) assay. This antibody-based assay can detect these disease biomarkers at concentrations down to 10^{-16} M (or ~6,000 molecules), well below the capabilities of current clinical assays. Thus, the LPCR assay format has the potential to revolutionize the early detection of biomarkers for diseases such as cancer. Grant applications were submitted during 2008 to continue this work and a manuscript describing the ILPCR assay for CEA has been submitted for publication.

Chemistry of Formalin Fixation: We are developing methods to reverse the effects of formalin fixation on proteins and RNA so that these molecules can be recovered from formalin-fixed paraffin-embedded (FFPE) tissues for retrospective proteomic and genomic analyses. If successful, this research could dramatically improve our ability to diagnose and treat numerous diseases. These methods are also highly relevant to the evaluation of formaldehyde-treated pathology specimens obtained from military casualties that have been exposed to infectious or toxic biowarfare agents. During the past year we have made substantial progress in the development of methods to recover proteins from FFPE tissues in a form suitable for proteomic analysis. We developed a tissue surrogate model system in 2007 to study the effects of histological processing on the properties of formalin-fixed proteins. Based upon the

results of this work, we developed a high-pressure method for recovering proteins from FFPE tissue surrogates. A publication describing this highly successful method was published in 2008 in *Laboratory Investigation*. We are now applying these methods to cells and tissues to see if the high-pressure method translates to archival FFPE tissues. A CRADA has been developed with Pressure BioSciences, Inc., South Easton, MA to commercialize this method. Both a SIBR and an R21 grant application has been submitted in 2008 to continue this work. Our studies on methods to recover RNA from FFPE tissues have lead to a submitted manuscript 2008. This study has identified treatment of formalin-fixed RNA with xylene and paraffin as key steps during histology that result in RNA degradation into short fragments. The mechanism responsible for this process is currently under investigation. The work described above has been funded by two grants from the National Cancer Institute.

Studies of Bone Development and Tissue Engineered Bone Implants: Traumatic bone injury and bone disease constitute the majority of medical cases of active duty personnel costing the military millions of dollars and thousands of lost man-hours per year. We are actively involved in using magnetic resonance microscopy (MRM) to develop and evaluate tissue engineered bone implants for reconstructive bone surgery and to evaluate bone disease. We employ MRM as a non-invasive high-resolution imaging modality to assess bone repair, bone and cartilage growth, and the infiltration of bone matrix into various scaffold materials. The goal of this work is to develop tissue engineered bone implants for repair of injured or diseased bone, and to compare the effectiveness of these constructs against more traditional strategies involving bone grafts. The results of this research will have a significant impact in the medical treatment and rehabilitation of active duty military personnel and Veterans. During 2008 we have developed collagen and calcium specific MRI imaging probes to study the molecular mechanisms involved in bone development and regeneration. A novel organ culture system, consisting of grafts cultured inside fertilized chicken eggs, was developed in 2008 to further these studies. Collaborative studies of tissue engineered bone implants with Dr. William Landis at the University of Ohio Medical School have continued during 2008. The work is being funded by a 4-year R01 grant from the National Institutes of Health.

Traumatic Brain Injury Research: During 2008 the Biophysics Division entered into an agreement with the Defense and Veterans Brain Injury Center (DVBIC) to develop a research program to study the mechanisms of blast-induced traumatic brain injury. This has resulted in an MOU between the AFIP and the DVBIC to form the DVBIC-AFIP Brain Injury Research Center at the AFIP Annex in Rockville. This program will involve the application of magnetic resonance imaging and other biophysical techniques to model systems, animal models, and biopsy specimens that have been subjected to blast forces that simulate those experienced by the detonation of improvised explosive devices used in the Afghanistan and Iraq conflicts. During 2008 two staff members have been hired to support this research. A state-of-the-art Coherent Anti-Stokes Raman Scattering (CARS) confocal microscope was also developed to perform pathophysiology studies on neural tissues. This work has been further extended during 2008 to include a collaborative project with Dr. Vernon Armbrustmacher to use MRM to examine post-mortem brain tissue for pathologic markers for blast-induced TBI. The goal of this research is to identify improved methods to detect, treat, and mitigate the effects of blast on our military service personnel.

Additional Military Relevant Research: We are employing MRM in an on-going project in collaboration with Dr. Darlene Ketten of the Woods Hole Oceanographic Institute and Harvard Medical School to image the membranous labyrinths of the human cochlea. These studies have the goal of understanding hearing loss in traumatic ear injuries and optimizing the development and placement of cochlear implants in restoring auditory function. This project has expanded during 2008 to include the study of sea mammals, specifically whales and dolphins, to determine the effects of naval operations on the welfare of these animals using both MRM and atomic force microscopy. We are also employing MRM for wound pattern analysis in skin and eyes for applications in forensic medicine.

Publicity and Honors:

1. Invited distinguished lecturer "Histology standards for immunohistochemistry" Keck School of Medicine, Los Angeles, CA, 7 February, 2008 (Mason JT).
2. Accepted chairmanship of the Research Committee, Armed Forces Institute of Pathology, 25 February, 2008 (Mason JT).
3. Accepted nomination to the Committee on Scientific Workforce Diversity and Development, National Institutes of Health, 24 January, 2008 (Mason JT).
4. Serve on the steering committee for the development of the Center for Neuro-regenerative Research and Medicine, Uniform Services University of the Health Sciences, 17

September, 2008 (Mason JT).

CONSULTATION

The AFIP Magnetic Resonance Imaging Facility serves to provide magnetic resonance microscopic imaging services to the AFIP and other military and civilian collaborators. Magnetic resonance microscopy techniques in cardiovascular, pediatric, forensic, otologic, orthopedic, genitourinary, neurologic, and ophthalmic pathology are being developed for analysis of cases for research and potential diagnostic applications.

<i>Cases</i>	<i>Completed</i>
Military	0
Army (0)	
Navy (0)	
Air Forces (0)	
Federal	0
VA (0)	
USPHS (0)	
OFA (0)	
Civilian	0
Interdepartmental	23
Total	23

EDUCATION

Courses Taught:

1. May 22–23, 2008: Conducted workshop "Techniques in Flow Cytometry," Foundation for Advanced Education in the Sciences, NIH, Bethesda, MD, (Cunningham RE).
2. June 9–10, 2008: Conducted workshop "Characterization of proteins by Western plotting," George Washington University, Washington, DC, (Evers DE)
3. October 13–15, 2008: Conducted workshop "Development of a UTE imaging sequence to study manganese deposition in developing embryos in shell-less culture," National Institutes of Health, (Potter K).

Continuing Scientific Education:

1. January 27–29, 2008: "Determination of antibody affinity by surface plasmon resonance" Bio-Rad Technologies, Rockville, MD (Mason JT, Evers DL, Fowler CB).
2. February 19–21, 2008: "Real-time PCR" Foundation for Advanced Education in the Sciences" Bethesda, MD, (Mason JT, Fowler CB, and Chesnick I).
3. October 21–23, 2008: "Determining biomechanical properties by atomic force microscopy" VEECO Metrology, Rockville, MD (Mason JT, Potter K).

Department Trainees:

1. Ingrid Chesnick, Research Assistant, Masters Thesis candidate, Hood College, Frederick, MD (Mason JT, thesis Advisor; Potter K, Project Director)
2. Thomas Erickson, Summer Intern, DVBIC-AFIP Brain Injury Center (Potter K, project advisor)
3. Parul Gangwal, Summer Intern, AFIP Summer Internship Program (Potter K, Graves I, project advisors)
4. Brady Cunningham, Summer Intern, AFIP Summer Internship Program (Evers DE, project advisor)

Presentations:

1. January 15, 2008: K Potter, "Magnetic resonance microscopy of mineralization." Armed Forces Institute of Pathology, Washington, DC.
2. January 15, 2008: Fowler, CB, "Hydrostatic pressure improves protein recovery from FFPE tissues," Armed Forces Institute of Pathology, Washington, DC.
3. February 6, 2008: Fowler CB, Mason JT, O'Leary TJ. "High hydrostatic recovery of proteins from formalin-fixed, paraffin-embedded archival tissue for proteomic studies," Biophysical Society Annual Meeting, Long Beach, CA.
4. February 7, 2008; Mason JT. "Histology standards for immunohistochemistry," Keck

School of Medicine, Los Angeles, CA.

5. February 8, 2008: Fowler CB, O'Leary TJ, Mason JT. "Effects of dehydration in ethanol on the structure of formalin-fixed proteins," Biophysical Society Annual Meeting, Long Beach, CA.
6. March 17, 2008: Mason JT. "Ultrasensitive detection of cancer biomarkers by the immunoliposome polymerase chain reaction assay," Early Detection Research Network of the National Cancer Institute, Bethesda, MD.
7. May 3, 2008: Chesnick IE, Centeno JA, Todorov TI, Koenig AE, Potter K. "Magnetic Resonance Microscopy of Mineralization Rates," International Society of Magnetic Resonance in Medicine, Toronto, Canada.
8. May 8, 2008: Chesnick IE, Mason JT, Eidelman N, Potter K. "Magnetic resonance microscopy of collagen mineralization," International Society of Magnetic Resonance in Medicine, Toronto, Canada.
9. September 17, 2008: Moore DF, Mason JT. "Traumatic brain injury" CNRM and Federal TBI Task Group Conference, Bethesda, MD.
10. July 10, 2008: He J, Mason JT. "Ultrasensitive detection of cancer biomarkers in blood and serum," Second Annual Conference on Rediscovering Biomarkers, Boston, MA.
11. October 10, 2008: Mason JT. "Imaging and biophysical methods to study traumatic brain injury," Neuroregeneration Consortium of the Uniform Services University of the Health Sciences, Bethesda, MD.
12. November 29, 2008: O'Leary TJ, Mason JT. "Molecular assays for the ultrasensitive detection of toxins and disease biomarkers," Association for Molecular Pathology, Grapevine, Tx.

RESEARCH

Journal Articles:

1. Badve S, Barone C, Bouzyk M, Long S, Mason JT. "DNA extraction and FFPE tissues," *Genome Technol Methods*. 2:7-14;2008.
2. Chesnick IE, Mason JT, Giuseppetti AA, Eidelman N, Potter K. "Magnetic resonance microscopy of collagen mineralization," *Biophysical Journal*. 95:2017-2026;2008.
3. Fowler CB, Cunningham RE, Waybright TJ, Blonder J, Veenstra TD, O'Leary TJ, Mason JT. "Elevated hydrostatic pressure promotes protein recovery from formalin-fixed, paraffin-embedded tissue surrogates," *Laboratory Investigation*. 88:185-195;2008.
4. Fowler CB, O'Leary TJ, Mason JT. "Modeling formalin fixation and histological processing with ribonuclease A: Effects of ethanol dehydration on reversal of formaldehyde cross-links," *Laboratory Investigation*. 88:785-791;2008.
5. Zhang X, Hashemi SS, Yousefi M, Ni J, Wang Q, Gao L, Gong P, Gao C, Sheng J, Mason JT, Man YG. "Aberrant c-erbB2 expression in cell clusters overlying focally disrupted breast myoepithelial cell layers: a trigger or sign for emergence of more aggressive cell clones?" *Int J Biol Sci*. 16:259-269;2008.

Three journal articles are in press.

Abstracts:

1. Chesnick IE, Centeno JA, Todorov TI, Koenig AE, Potter K. "Magnetic resonance microscopy of mineralization rates." *Magnetic Resonance in Medicine*. 2008;16:539.
2. Chesnick, IE, Avallone, FA, Potter, K. "Magnetic resonance microscopy of a novel mineralizing system." *Magnetic Resonance in Medicine*. 2008;16:2533.
3. Chesnick, IE, Mason, JT, Eidelman, N, Potter, K. "Magnetic resonance microscopy of collagen mineralization." *Magnetic Resonance in Medicine*. 2008;16: 2532.
4. Fowler CB, Mason JT, O'Leary TJ. "High hydrostatic recovery of proteins from formalin-fixed, paraffin-embedded archival tissue for proteomic studies." *Biophysical Journal*. 2008;94:2827a.
5. Fowler CB, O'Leary TJ, Mason JT. "Effects of dehydration in ethanol on the structure of formalin-fixed proteins." *Biophysical Journal*. 2008;94:2831a.

Book Chapter:

Potter K, Landis WJ. "Image-based, non-invasive monitoring of engineered tissues." In: *Translational Approaches in Tissue Engineering and Regenerative Medicine*. Jeremy Mao, Gordana Vunjak-Novakovic, Antonios Mikos, Anthony Atala, eds. Artech House, Inc; Norwood, MA: 2008.

Projects:

1. Formalin fixation and recovery of RNA and protein, UBQI.
2. A field-deployable ultra-sensitive assay system for biological toxins using immunoliposome-DNA amplification hybrids, UBUC.
3. Nuclear microarrays for quantitative high-throughput molecular screening of tissue specimens, UBHP.
4. Correlation of NMR measurable parameters, UBAT.
5. Bone formation studies by magnetic resonance microscopy, UB5Q
6. NMR microscopy of metastatic disease, UBTv.

Collaborators:**Military:**

1. Dr. Tiffany Heady, Walter Reed Institute of Army Research, Silver Spring, MD.
2. Dr. Michael Jaffe, Director, Defense and Veterans Brain Injury Center, Walter Reed Army Medical Center, Washington, DC.

Civilian:

1. Dr. Naomi Eidelman, American Dental Association, Gaithersburg, MD
2. Dr. Darlene Ketten, Harvard Medical School, Boston, MA
3. Dr. Gary Griffiths, Director of the Imaging Probe and Developmental Center, NHLBI, NIH, Gaithersburg, MD
4. Dr. William Landis, Northwestern Ohio Universities College of Medicine, Rootstown, OH
5. Dr. Lorraine Siperko, Northwestern Ohio Universities College of Medicine, Rootstown, OH
6. Dr. John Small, National Institutes of Standards and Technologies, Gaithersburg, MD
7. Dr. Paul Anderson, Queen Mary College, University of London, London, England
8. Dr. Graham Davis, Queen Mary College, University of London, London, England
9. Dr. Michael Thali, Institute for Forensic Medicine, University of Bern, Bern, Switzerland
10. Dr. Isabell Sesterhenn, Genitourinary Pathology, AFIP
11. Dr. Jose Centeno, Environmental & Toxicologic Pathology, AFIP
12. Dr. Todor Todorov and Dr. Alan Koenig at the United States Geological Survey, Denver, CO
13. Dr. Sandi Kwee, Hamamatsu/Queen's PET Imaging Center, Queen's Medical Center, Honolulu, HI
14. Dr. William Oliver, Georgia Bureau of Investigation, Trion, GA
15. Dr. Jamie Downs, Regional Medical Examiner, Savannah, GA
16. Dr. Clive Taylor and Dr. Shan-Rong Shi, Keck School of Medicine, Los Angeles, CA
17. Dr. David Moore, MD, PhD, Scientific Director, Defense and Veterans Brain Injury Center (DVBIC) Walter Reed Army Medical Center, Washington, DC
18. Dr. Jens Herberholz at the University of Maryland, College Park, MD

New Collaborations Formed in 2008:

1. Dr. Mason, Dr. Fowler, and Dr. O'Leary have initiated a collaborative project with Dr. Clive Taylor and Dr. Shan-Rong Shi of the Keck School of Medicine, USC, to develop tissue surrogate standards for immunohistochemistry.
2. Dr. Mason and Dr. Potter are working with Dr. Vernon Armbrustmacher, Armed Forces Institute of Pathology, to use magnetic resonance microscopy to study traumatic brain injury in post-mortem brain specimens.
3. Dr. Mason is collaborating with Dr. Marcus Cicerone at the National Institute of Standards and Technology to develop techniques to image neural tissue by Coherent anti-Stokes Raman Scattering (CARS) microscopy.
4. Dr. Mason and Dr. Fowler are collaborating with Alexander Lazarev from Pressure BioSciences, South Easton, MA on the use of high-pressure recovery of biomolecules from fresh and formalin-fixed tissues.
5. Dr. Mason and Dr. Evers are collaborating with Tanya Kerrigan from BioTrove, Inc. Woburn, MA on development of a novel nano-volume PCR array for comprehensive qPCR analysis of RNA sample quality.
6. Dr. Evers and Mr. Cunningham are collaborating with Dr. Isabella Sesterhenn of the AFIP and Dr. Albert Dobi from the Center for Prostate Disease Research to develop probes for detecting gene rearrangements associated with prostate cancer.

PROFESSIONAL ACTIVITIES

MOUs, CRADAs, and Patents Developed in 2008:

1. An MOU was developed between the Defense and Veterans Brain Injury Center and the Armed Forces Institute of Pathology to form the DVBIC-AFIP Brain Injury Research Center at the AFIP Rockville Annex in conjunction with the Division of Biophysics.
2. A provisional patent application was filed through the Veterans Health Administration and the Armed Forces Institute of Pathology entitled "Pressure-assisted molecular recovery (PAMR), pressure-assisted antigen retrieval (PAAR), and pressure-assisted tissue histology (PATH).
3. A CRADA was developed between the Armed Forces Institute of Pathology, the Veterans Health Administration, and Pressure BioSciences, South Easton, MA, to develop improved methods for the recovery of proteins from formalin fixed tissues for proteomics analysis.

Official Trips and Activities:

1. January 24-25, 2008: National Institutes of Health, DOD representative to the Advisory Council of the National Institute of General Medical Sciences, Bethesda, MD, Mason JT.
2. February 21-22, 2008: Reviewer for Skeletal Biology Development and Diseases Study Section, Bethesda, MD, Potter K.
3. April 3-4, 2008: Reviewer for Special Emphasis Panel for Musculoskeletal, Oral and Skin Sciences, Bethesda, MD, Potter K.
4. May 12-13, 2008: Reviewer for Endocrinology Merit Study Sections A&B, Veterans Health Administration, Washington, DC, Mason JT.
5. May 15-16, 2008: National Institutes of Health, DOD representative to the Advisory Council of the National Institute of General Medical Sciences, Bethesda, MD, Mason JT.
6. June 15-20, 2008: Grant Reviewer, Multiple Sclerosis Society of Australia, Mason JT.
7. August 27, 2008: National Institutes of Health, Committee on Scientific Workforce Diversity and Development, Bethesda, MD, Mason JT.
8. September 17, 2008: Traumatic Brain Injury Task Force, CNRM and Federal TBI Task Group Conference, Bethesda, MD, Mason JT.
9. September 18-19, 2008: National Institutes of Health, DOD representative to the Advisory Council of the National Institute of General Medical Sciences, Bethesda, MD, Mason JT.
10. October 16-17, 2008: Reviewer for Musculoskeletal Tissue Engineering Study Section, National Institutes of Health, Bethesda, MD, Potter K.
11. October 21, 2008: National Institutes of Health, Committee on Scientific Workforce Diversity and Development, Bethesda, MD, Mason JT.
12. November 10-11, 2008: Reviewer for Special Emphasis Panel for Musculoskeletal, Oral, and Skin Sciences, NIH, Potter K.
13. December 8, 2008: Reviewer for Endocrinology Merit Study Section A, Veterans Health Administration, Washington, DC, Mason JT.

Editorial Work:

1. Reviewed manuscripts for *Journal of Histochemistry and Cytochemistry*, *Journal of Immunological Methods*, *FEBS Letters*, *Journal of Membrane Molecular Biology*, and *Analytical Chemistry* (10 total), Mason JT.
2. Reviewed manuscripts for *Journal of Magnetic Resonance Imaging* and *Journal of Magnetic Resonance in Medicine* (5 total), Potter K.
3. Editorial Advisory Board, *Journal of Membrane Molecular Biology*, Mason JT.

GRANT AND CONTRACT FUNDING

Grants Active During 2008:

1. R21-CA118477-01 (O'Leary, TJ/Mason, JT Co-PIs) 06/01/06 – 03/31/08
National Cancer Institute
Recovery of RNA from formalin-fixed tissues
2. R33 CA107844-01 (O'Leary, TJ/Mason, JT Co-PIs) 01/01/03 – 08/31/08
National Cancer Institute
Recovery of protein from formalin-fixed tissues
3. R01 AR051446-01A1 (Potter, K, PI) 01/01/04 – 12/31/09
National Institutes of Health/NIAMS
Bone formation studies by magnetic resonance microscopy

4. BCTR0706983 (Man Y-g, PI) 07/01/07 – 06/30/09
Susan G. Komen Breast Cancer Foundation
Potential values of CAPC in early detection,
treatment and prevention of breast cancer invasion
(Mason, JT, Co-investigator)
5. VA01-0701207 (Mason JT/O’Leary TJ, Co-PIs) 07/01/07 – 06/30/11
Department of Veterans Affairs
Ultra-sensitive Detection of Biological Toxins
6. 1S10RR022560-01A2 (Eidelman, N, PI) 01/01/08 – 12/31/08
Research Resource Application
National Center for Research Resources/NIH
Application for a Nicolet Continuum XL FT-IR
Imaging Microscope
(Potter K, Co-Investigator)

Grant Applications Submitted or Pending 2007:

1. R21-CA134359-01A (Fowler, CB PI) Pending review
National Cancer Institute
Recovery of Proteins from Formalin-Fixed
Tissues using Elevated Hydrostatic Pressure
(Mason JT, Co-Investigator)
2. Small Business Initiated Research, NIH (Lazarev, A, PI) Pending review
Pressure BioSciences, South Easton, MA
High-pressure recovery of biomolecules from
Fresh and formalin-fixed tissues
(Mason JT, Fowler CB, Co-Investigators)
3. Small Business Initiated Research. NIH (Kerrigan T, PI) Pending review
BioTrove, Inc., Woburn, MA, Development of a novel
nano-volume PCR array for comprehensive qPCR analysis
of RNA sample quality
(Mason JT, Evers DE, Co-Investigators)
4. CDMRP Breast Cancer Program (Evers, DE, PI) Pending review
A sensitive and quantitative assay for mRNA in
formalin-fixed, paraffin-embedded sentinel node biopsies
(Mason JT, Co-Investigator)
5. CDMRP-Defense Related Medical Research Program Pending review
(Mason JT and Moore DF, Co-Investigators)
Effect of blast waves on the biomechanical and
physiological properties of CNS tissue
(Potter K, Co-Investigator)
6. CDMRP-Defense Related Medical Research Program Pending review
(Mason JT, PI)
Highly sensitive detection of pathogens and bio-toxins
in blood using a chemically-based chain reaction assay
7. National Science Foundation (Herberholz J, PI) Pending review
General Research Board of the University of Maryland,
College Park, Functional imaging of crayfish by
magnetic resonance microscopy
(Potter K, Co-Investigator)
8. Prevent Cancer Foundation (Evers, DE, PI) Not funded
Ultrasensitive detection of microRNA breast
cancer biomarkers
(Mason JT, Co-Investigator)
9. National Institutes of Health (Man, Y-g PI) Not funded
A study the molecular basis of breast cancer
development and metastasis
(Mason JT, Co-Investigator)



Christopher R. Owner, PhD
Chair
Date of Appointment — 1 January 2005



Frank J. Roberts
Associate Chair
Date of Appointment — 5 February 2007

DEPARTMENT OF REPOSITORY SERVICES

MISSION

The Department of Repository Services provides administrative support to the Directorate of Advanced Pathology and to the Department of Defense in achieving the Institute's objectives in consultation, education, and research. The department's main functions are as follows:

1. Maintaining the AFIP Repository, consisting of over 3.1 million case files and associated paraffin blocks, microscopic glass slides, and formalin-fixed tissue specimens.
2. Receiving and accessioning case materials with the highest possible materials accountability and responding to contributors' requests for information on the status of cases submitted.
3. Receipting for all express and courier mail and providing a case pick-up and delivery service throughout the Institute.
4. Responding to outside requests for release of medical information and pathologic materials.
5. Coding and entering pathologic diagnoses and case demographic data into the Institute's research database using the SNOMED coding system.
6. Performing administrative quality review of case files following final report.
7. Obtaining patient follow-up information for clinicopathologic correlation studies.
8. Conducting periodic quality assurance audits to ensure case record completeness, the integrity of the research database, and the accurate tracking of case materials.
9. Generating and mailing invoices for civilian billable cases using appropriate CPT codes while ensuring all services and tests rendered are accurately and completely accounted for in PIMS.
10. Maintaining a repository of pathologic materials from closed military medical facilities in accordance with applicable DoD regulations and federal statutes.
13. Serving as Institute Coordinator for the Partnership Program with Rock Terrace High School, Rockville, Maryland.
14. Providing budgetary monitoring and policy guidance for the DoD Automated Central Tumor Registry (ACTUR), the DoD Central Cancer Registry, and hosting the annual DoD Cancer Registrars Training Conference.
15. Providing management support, policy guidance, and quality assurance monitoring for the Institute's digital imaging contract task orders concerning document conversion.
16. Maintains over 4.1 million patient records and associated material from 25 military facilities closed prior to the 2005 BRAC law.

ORGANIZATION

The department is currently organized into five separate entities as follows:

1. Office of the Chair
2. Case Materials Accountability Division (CMAD)
3. Records Repository
4. Materials Repository
5. HIPAA Training Office

OFFICE OF CHAIR

The following is a report on programs and initiatives that impact more than one division or they are special programs managed out of the Office of the Chairperson.

Digital Imaging Effort:

This year the Institute's digital imaging initiative entered into its seventh year with Information Manufacturing Corporation (IMC). Although there was no active conversion tasking regarding the Base Closure records the knowledge management initiative developed for extracting pertinent data from the database for the construction of designated tissue microarrays continues. During this year, the number of images to be converted to digital format for the Main AFIP accessioned repository continued as in the previous contract. The number of cases or records currently converted and available for electronic retrieval under each of the separate task orders is as follows:

AFIP Main Accessioned Repository	1,574,937
Legal Medicine Claims Files	36,639
Radiology Pathology Cases	434,352
Andrews AFB Tumor Registry	8,482
Womack Army Medical Center Tumor Registry, Fort Bragg	1,221
Portsmouth Naval Medical Center Tumor Registry	5,737
Walter Reed Army Medical Center Tumor Registry	40,299
Patrick Air Force Base Tumor Registry	2,371
US Air Force Academy Tumor Registry	3,774
Travis Air Force Base Tumor Registry	6,145
William Beaumont AMC Tumor Registry	8,832
Base Realignment and Closure Records	4,167,545
BRAC Facility Logs	573
MIS Library Test	110
MIS Library	206,219
MIS Library-Arey Depena	7,091
MIS Library Book Series	164
MIS Library-AMM	559
MIS Library-NCP	7,489
MIS Surgical Photos	541
MIS Vetpath	193
MIS WDMET	86
MIS Museum Orthopath	2,682
Testicular Tumors	1,121
AFIP-Fatty Liver Diseases	6,928
National Marine Fish Service	1,306
AFIP-Welker	140
Log-E	16
Total Records	6,525,552

Department of Defense (DoD) Cancer Registry Program: Department of Defense (DoD) Cancer Registry Program:

The main objective of the DoD Cancer Registry is to assist in improving the care given to our service members and their families. The DoD Cancer Registry Program continues to make progress in improving data collection with strives toward analyzation of the data. The main highlights of the program during 2007 were as follows:

The annual training conference for the DoD Tumor Registrars was held in Las Vegas, NV in April. The theme of the conference was "Beating the Odds for a Cancer-Free Tomorrow." The objective of the conference was to provide continuing education and ongoing training to cancer registrars at the Department of Defense (DoD) military treatment facilities in order to enhance their knowledge and encourage expertise in all areas of cancer registration and

cancer data collection standards.

The DoD Central Cancer Registry implemented two new edit sets to be used when processing new cases in the Registry Plus software used in the Central Cancer Registry to house the data. This implementation took place by working with Centers for Disease Control (CDC) and Electronic Data System (EDS) to insure the edits being used coincide with the Automated Central Tumor Registry (ACTUR) data set and edits. One of the data sets will be used on the single cases entering in the database and the other for the consolidated cases. The purpose for the new edit sets is to include new data items being collected by the registrars in the reporting facilities. The DoD Central Registry processed the 2002 through 2004 cases during 2007 and all the cases have gone through the editing process before being consolidated.

The DoD Central Cancer Registry is currently housing seven years of data which includes 55,370 patients and 58,226 tumors in the Central Registry database.

Rock Terrace School Partnership Program:

The Institute's long-standing relationship with Rock Terrace High School continued in 2008. Approximately 15 students worked at the Institute as volunteer student aides and paid part-time workers. The students worked in the Materials Repository Division and the Records Repository Division. The students continued their labor-intensive project to shred patient-identifiable documents and they continued being responsible for the folding and mailing of the invoices generated under the Civilian Consultation Program. In addition, the students began mailing out the mid-month statements to civilian contributors for the AFIP Business Office.

HEALTH INSURANCE PORTABILITY AND ACCOUNTABILITY ACT OFFICE (HIPAA)

STAFF

Frank J. Roberts, Privacy Officer
Izzat S. Ali, CT (ASCP), Training Administrator

MISSION

The AFIP Office provides guidance to AFIP staff for the implementation and maintaining the requirements of the Health Insurance Portability and Accountability Act. The Office also provides Initial (core) and Refresher HIPAA training to the Institute staff. HIPAA training is also given to students participating in AFIP's Summer Student's program. With the phasing bimonthly by category of both, the annual HIPAA Refresher, and Security training this past year, AFIP continued to consistently maintain training targets at the 98% or above, level. To promote HIPAA awareness, posters continued to be placed at strategic locations in the Institute.

Ms. Ali serves as the AFIP Cytotechnologist providing microscopic screening and preliminary evaluation, as needed, to the Department of Gynecology and Breast Pathology.

Ms. Ali participated in the College of American Pathologists' (CAP) Inter-laboratory Proficiency exercises in Gynecologic and Non-Gynecologic Cytopathology. She also successfully completed the Federally mandated annual Gynecologic Cytopathology proficiency test.

Ms. Ali participated in the educational activity titled "Mastering the Challenges of Cytopathology" during April in Baltimore, MD.

Ms. Ali serves as the Privacy Officer for the Tissue Microarray (TMA) program ensuring HIPAA and privacy regulations are followed in the use of patient material.

CASE MATERIALS ACCOUNTABILITY DIVISION



Myra A. Moxley
Chief, Case Materials Accountability Division
Date of Appointment - 12 October 1993

MISSION

The Case Materials Accountability Division (CMAD) is responsible for the accurate receipt and accessioning of all pathology cases submitted for consultation, education, and research. Cases are submitted from the Department of Defense and other federal agencies, including the Department of Veterans Affairs, and from civilian pathologists all over the United States and the world. Cases received with discrepancies, such as mismatched paperwork and materials or missing items are held and the contributor is called for verification. All discrepancies must be resolved or explained before the case can be processed. The division is also responsible for the receipt of all express and courier mail by the Institute during duty hours and it runs a messenger service that picks up and delivers pathologic case materials and packages throughout the Institute several times daily.

STAFF

Rosetta Jackson – Senior Medical Records Technician, Gillette CMAD
Adrian Bingham – Senior Medical Records Technician
Gloria Countiss – Senior Medical Records Technician
Norma Garey – Senior Medical Records Technician
Travis Jones – Medical Records Technician
Velda Jones – Medical Records Technician
Andrienne Kates – Medical Records Technician
Geraldine Key-Lovett – Medical Records Technician
Frances Miller – Secretary
Constance Patterson – Medical Records Technician, Gillette CMAD
Stephen Banda – Accessions Clerk
Joel Ryerson – Accessions Clerk

American Registry of Pathology

Jacqueline Martinez-Carrera – Triage Manager
Ramona James – Medical Records Technician
Annette Dickens – Messenger
Nydra Newman – Messenger
Kai Roebuck – Messenger

General Dynamics Information Technology

Rhonda Green – Medical Records Technician
Christopher Robar – Medical Records Technician
Dana Robinson – Medical Records Technician
Tymechia Tasker – Medical Records Technician
Tara Zinemon – Medical Records Technician

ACTIVITIES

The combined division's workload statistics for 2007, compared to 2008, are as follows:

Workload Factor	2007	2008
Cases Accessioned	45,087	43,015
Federal Accessions	35,713	31,059
Civilian Accessions.....	9,374	11,956

During calendar 2008 the CMAD Division was able to fill all contract vacancies because of an increased caseload. All new employees were assigned to the Triage area first, allowing them to receive their initial training in the triaging of all cases entering the Institute for consultative purposes. Cross-training of all Medical Records Technicians in this area has helped each division within the Repository recognize and have full knowledge of what is required when accepting a case into the Institute for consultative, research and educational purposes. This training has been a very valuable tool and allows employees to be moved and utilized within the Repository when needed.

CMAD continues to accession the OIF (Iraqi) cases of which there were 4,000 Radiology Class cases, Wednesday Slide Conference and many other important studies continue to be accessioned throughout the year. Training sessions continued throughout the year on proper entering and searching of cases within the PIMS system. Several new upgrades were made by Information Management to the PIMS system. DOD mandated Office 97, and the spyware (Symantec Antivirus) is an on-going program.

All division SOPs were reviewed and no changes were made to them during calendar year 2008. All new employees were issued individual training and reference notebooks.

RECORDS REPOSITORY DIVISION



Jameelah Johnson

Chief

Date of Appointment -- 19 March 2007

MISSION

The Records Repository Division is organized into 2 branches, the Records Archives Branch, which includes the Medical Information Release Office, and the Pathology Data Branch. Both branches work closely together and many of the personnel have been cross-trained in each other's functions.

RECORDS ARCHIVES BRANCH:

Receives stores, maintains, and retrieves all forms (microfiche, digital images, paper) of pathologic case files.

Conducts inventory verification, appropriately identifies sequences, and performs initial document preparation functions such as ordering and de-duplicating the records prior to their being transferred the digital imaging contractor.

Matches Legal Medicine Claims files with the applicable accessioned record, verifies patient data in PIMS or accessions the case as required.

Performs quality assurance review on document images and passes or fails the images as applicable.

Retrieves previously accessioned case folders in response to the accessioning of a new case sequence on the same patient.

Returns original x-rays to contributors

Processes all requests for release of information from the pathologic case files.

Processes all requests for loan or return of submitted pathologic materials (slides, paraffin locks, or wet tissue specimens).

Tracks submission of all Department of Veterans Affairs claims cases.

Rotates into the Triage function as assigned.

Assists in receiving and accessioning Radiology class cases and Environmental Pathology Registry cases (KUW, POW, and Agent Orange).

Maintains Institute Special Handling files and performs annual inventory and screening of these records.

Assists in record location audits and in looking for missing or misplaced records.

GENERAL DYNAMICS INFORMATION TECHNOLOGY (GDIT)

Performs document preparation for digital imaging by reviewing all documents within a record.

Corrects any deficiencies or notes deficiencies that cannot be fixed by completing a quality assurance review form and explaining discrepancy.

Matches records against contractors shipping inventory.

Performs quality assurance review of indexed data and scanned images of medical records.

Compares images and indexed data to original records and rejects any records with imaging or indexing errors.

Prepares reports of reviews and calculates error percentages.

Ensures all batches rejected are corrected and reprocessed.

Process incoming pathology case files for appropriate identification, inventory, filing and storage.

INFORMATION MANUFACTURING CORPORATION

Process incoming pathology case files and those cases already on file and package for shipment.

Shifts records within storage facilities and identifies and files loose correspondence.

Scans all loose correspondence with the exception of non-medical that fall within imaging range of AWARS.

Organizes files by accession number all non-paper media returned for file by the digital imaging contractor.

Retrieves prints documents out of AWARS as required.

Assists in filing case folder in the repository by accession number.

PATHOLOGY DATA BRANCH:

Abstracts, codes, and classifies final diagnoses of accessioned cases according to SNOMED International.

Retrieves demographic and diagnostic data from the research database to assist Institute staff members in their research and teaching endeavors.

Obtains patient follow-up information in support of approved clinic pathologic correlation or descriptive pathology studies.

Contacts contributing pathologists, hospitals, tumor registrars, patients, military records centers, and clinicians to obtain complete information.

Prepares search requests to forward to the National Death Index (NDI) to include NDI Plus, at the request of investigators.

Rotates into the Triage function as assigned.

Assists in receiving and accessioning Radiology class cases and Environmental Pathology Registry cases (KUW, POW, and Agent Orange).

Generates invoices on civilian cases using applicable CPT codes; ensures all patient and contributor demographic data is accurate and that all laboratory tests ordered in PIMS are accounted for through the billing or no bill memo functions; mails invoices if required.

RECORD ARCHIVES BRANCH/MEDICAL INFORMATION RELEASE OFFICE

STAFF

Louise Matthews – Lead Medical Records Technician

Eva D. Duncan – Senior Medical Record and Information Release Technician

Shirley Shields – Medical Records Technician

Tiloria Brooks-White – Medical Records Technician
 Lenora Vaughn – Medical Records Technician
 Pamela Poteat – Medical Records Technician
 Serita Hewitt – Medical Records Technician
 Erma Campbell – Medical Records Technician

American Registry of Pathology

Glenda Taylor – Medical Records Technician

Information Manufacturing Corporation

Suzanne Davis – Imaging Technician

General Dynamics Information Technology

William Moore – Quality Assurance Supervisor
 LaTonya Fleming – Quality Assurance Team Lead
 Sara Reddix – Quality Assurance Technician
 LaKinya Sowell – Quality Assurance Technician
 Rodericka Reyes – Quality Assurance Technician
 Karlos Reynolds – Quality Assurance Technician
 Aisha Sanders – Quality Assurance Technician
 Paula Wynn – Quality Assurance Technician
 Kevin Edwards – Quality Assurance Technician

ACTIVITIES

The division's workload statistics for calendar year 2007 as compared to 2008 are as follows:

Workload Factor	2007	2008
Folder/Materials Actions Received	74,768	65,905
Retrieval/Sent Actions	9,297	9,750
Information Release Requests	1,750	2,186
Material scanned for TMA	1,804	2,721
Special Handling Cases	250	298

PATHOLOGY DATA BRANCH

STAFF

Toni Dickens – Lead Medical Records Technician
 Janice Powell – Medical Records Technician
 Terry Lloyd – Medical Records Technician
 Tammie Miles – Medical Records Technician
 Jacqueline Pinnix – Medical Records Technician
 Elaine Tabernilla – Medical Records Technician (Veterans Affairs)
 Frances Wise – Medical Records Technician (Veterans Affairs)

ACTIVITIES

The Pathology Data Branch's workload for 2007, compared with that of 2008 is as follows:

Workload Factor	2007	2008
Cases Uploaded	72,517	61,872
Data Retrievals.....	239	242
Invoices Generated	6,698	,620
Cases Acknowledge to be Coded	40,612	45,165

Since assuming responsibility in the Records Repository Department in March 2007, the coding backlog has been eliminated from thirteen months to three weeks. Furthermore, there have been no issues in coding and billing accuracy. Pathology Data staff are keeping up with all civilian billing requirements and, other cases put on hold for pathology department problem resolution, no billing backlogs exist. Furthermore, there has been a decline in cases coded and billing due to a reduction in civilian contributor workload. The medical retrieval for research and education has remained about the same due to new and improved research protocol policies and procedures.

Moreover, in addition to daily duties assigned, the Records Archive Branch has been tasked to retrieve and locate 200 cases a day for the Asterand Project. The Asterand Project was successfully completed in October 2008 which resulted in the Repository being worth approximately \$5,000,000 dollars. Since July 2007, this department has also been assigned to scan, categorize, and process images into the system for the TMA Project. There have been over 2,721 images processed for the TMA project.

The Medical Release of Information Department has had a sufficient increase in litigation and patient care claims which have been processed accurately and in a timely manner.

General Dynamic Information Technology has successfully completed documentation preparation for over 2.4 million cases that has been imaged in the Victor Ferrans Digital Repository (formally known as the AWARS). Their success has also attributed to new leadership and training.

Due to staff shortages in the Case Material and Accession Division, the Records Repository Department has worked over 3,982 hours, so that incoming cases could be process in a timely manner.

The success of Records Repository Department was due to new objectives, perseverance of staff and motivational tools.

MATERIALS REPOSITORY DIVISION



Tyrone Connie
Chief
Date of Appointment – 10 DEC-2007

MISSION

The Materials Repository Division processes, stores, and retrieves accessioned formalin-fixed tissue, microscopic glass slides, and paraffin blocks in support of the Institute's consultation, education, and research missions. In addition, a tissue-resealing laboratory is maintained for use in processing formalin-fixed tissue for storage and for tissue resealing and maintenance functions. The division also maintains a repository of pathologic materials and reports from closed military medical facilities. The division maintains a storage area within Bldg 54, the AFIP main building, along with two 15,000 square foot warehouses located on the Forest Glen Annex of Walter Reed Army Medical Center in Silver Spring, Maryland.

STAFF

Tyrone Connie – Materials Handler Warehouse Supervisor
Gregory Corbin – Materials Handler Work Leader
Thelma P. Best – Materials Handler
Ronald L. Duell – Materials Handler
Wayne Hamilton – Materials Handler
Willie Lovett – Materials Handler
Larry Middleton – Materials Handler/Driver
James C. Stinney – Materials Handler/Driver
Audrey E. Tinker – Materials Handler
Marvin L. Alston – Materials Handler
Kendrick Summers – Materials Handler
John McClenny – Materials Handler
Douglas Underwood – Materials Handler

- American Registry of Pathology*
 - Alfonzo Riddick – Material Handler-Warehouse Manager
 - Christopher Jackson – Material Handler
 - Ronnie Payne – Materials Handler
- Information Manufacturing Corporation*
 - Della Owens – Materials Handler
- General Dynamics Information Technology*
 - Brian Mozon – Materials Handler
 - Lawrence Warren – Materials Handler
- Jackson Foundation*
 - Vincent Buskey – Materials Handler
 - Kia Roebuck – Materials Handler

ACTIVITIES

The division's workload statistics for 2006 as compared to 2007 are as follows:

Workload Factor	2007	2008
Cases received for file.....	60,992	63,896
Cases forwarded	19,659	20,302

The Materials Repository continued to be inundated this year with a large volume of materials being returned to the Repository by researchers who departed the Institute. This large volume of slides, blocks, and tissues continue to be processed and added to the main repository files. During 2008, Materials Repository personnel continued to assist in the oversight of the digital imaging contract, assisting in the performance of inventory verification, and moving the boxes of records back and forth from the AFIP main building to Forest Glen.



Leslie H. Sobin, MD, SES
 Director
 Date of Appointment — 20 September 1987

CENTER FOR SCIENTIFIC PUBLICATIONS

STAFF

Leslie H. Sobin, MD, Director
 Frances W. Card, Visual Information Specialist
 Anupamjit K. Mehrotra, MD, Associate Editor
 (A) Robyn Mincher, Technical Writer/Editor

IMPACT

The Center for Scientific Publications:

- oversees editorial and publishing issues of Institute-wide interest,
- reviews proposals for AFIP-generated publications,
- oversees the processing and transmitting of manuscripts to publishers,
- is responsible for clearance of manuscripts and abstracts according to DoD directives,
- maintains the Institute's publications records and archives,
- reviews requests for permission to reprint published materials,
- edits, designs, and produces the Annual Reports, the Annual Research Progress Report, the Institute's non-serial publications, the *AFIP LETTER*, informational brochures and catalogs, and produces the Museum newsletter, *Flesh and Bones*.
- provides expert review and consultation for the AFIP/ARP Atlases of Tumor and Nontumor Pathology,
- designs, coordinates, and produces CD-ROMs of Institute publications and provides user support,
- works with the Public Affairs Office the Museum and other departments to supply photos,
- promotes the development and application of standardized diagnostic nomenclatures and classifications of the World Health Organization (WHO) and the International Union Against Cancer (UICC),
- coordinates revision of the UICC's TNM Classification and oversees publication of the revised editions.

In 2008, the center collaborated with ARP in the production of atlases of pathology on tumors of the salivary glands as well as an atlas on non-neoplastic disorders of the bone marrow. The worldwide distribution of these has great impact on the Institute's reputation as a major international source of authoritative information, standardized classifications and nomenclature. The outstanding quality of illustrations, the hallmark of AFIP/ARP publications, has drawn continued praise in scientific journal reviews.

Work on the fourth series of tumor atlases and on the nontumor atlas series continues in print and online formats.

Work continues with the International Union Against Cancer UICC on tumor classification and staging (TNM system) and the interaction of staging with nonanatomic prognostic factors.

Work on the second volume of Pathology of Infectious Diseases, Protozoan and Invasive Arthropod Diseases continues.

The *Laboratory Methods in Histotechnology*, the standard lab manual for the institute, is being completely updated with instructive videos, web links and other interactive features.

The Veterinary Department's Wednesday Slide Conferences are being produced in both book format and PDF Web form.

PROFESSIONAL ACTIVITIES

Official Trips (funding agency in parentheses):

1. April 2008: Prognostic Factors in Cancer meeting, International Union against Cancer, London, UK, LH Sobin, (UICC)
2. May 2008: TNM Prognostic Factors Project meeting, International Union Against Cancer (UICC), Geneva, Switzerland, LH Sobin (UICC)
3. August 2008: Gastric cancer staging meeting, American Joint Committee on Cancer, Buffalo, NY, LH Sobin (AJCC)
4. November 2008: (IASLC) Lung cancer staging meeting, Chicago IL, LH Sobin (International Association for the Study of Lung Cancer)

Committees (Intramural):

1. Chair, Committee on Graduate Medical Education – LH Sobin
2. Member, Institutional Review Board – FW Card

Committees (Extramural):

LH Sobin:

1. Chair, TNM Prognostic Factors Project of the International Union Against Cancer
2. Member, WHO Expert Advisory Panel on Cancer

Editorships:

LH Sobin:

1. Associate Editor, AFIP Atlas of Tumor Pathology, 4th Series
2. Associate Editor, AFIP/ARP Atlas of Nontumor Pathology
3. Co-editor, TNM Classification of Malignant Diseases, 7th edition

AFIP Staff Publications (see Cumulative Publications List)

1. AFIP/ARP Atlases of Tumor Pathology—Ellis GL, Auclair PL. *Tumors of the Salivary Glands*. Washington, DC: American Registry of Pathology, Armed Forces Institute of Pathology; 2008. AFIP Atlas of Tumor of Pathology. Fourth series, Fascicle 9.
2. AFIP/ARP Atlases of Nontumor Pathology—Foucar K, Viswanatha DS, Wilson CS. *Non-neoplastic Disorders of Bone Marrow*. DC: American Registry of Pathology, Armed Forces Institute of Pathology; 2008 Atlas of Nontumor Pathology, First series, Fascicle 6.
3. Histological Classification of tumors of domestic animals—Kiupel M, Capen C, Miller M, Smedley R. *Histological classification of tumors of the endocrine system of domestic animals*, 2nd series, Vol. XII. 2008.

Other Publications:

1. Card F, Mincher R. Armed Forces Institute of Pathology *Annual Report 2007*. Washington DC: Armed Forces Institute of Pathology; 2008. (print version).
2. Card F. Armed Forces Institute of Pathology *Annual Report 2007*. Washington DC: Armed Forces Institute of Pathology; 2008. (Departmental reports, CD-ROM version).
3. Stone P, Card FW. *AFIP LETTER*. 2007; vol 166: nos 1-4.
4. Clarke T, Card FW. *Flesh and Bones*. National Museum of Health and Medicine. 2008; vol 8: nos 1-2.

OFFICE OF QUALITY AND COMPLIANCE



Jo Lynne W. Raymond, COL, VC, USA
Chair

Date of Appointment — 1 June 2008
Director, Office of Quality and Compliance
Deputy Director, Army

*founded
as*
**ARMY MEDICAL
MUSEUM**
1862

**Safety Management
Office of Quality Assurance**





Brenda L. Smith, MS, CSP, CHSP
Director
Date of Appointment – 21 May 2001

OFFICE OF SAFETY MANAGEMENT

MISSION

The Office of Safety Management was established in March 1994 to develop and manage a Safety Program as outlined in Army Regulation 385-10, the Department of the Army Safety Program. This office monitors guidelines set forth by the Environmental Protection Agency (EPA), Occupational and Safety Health Administration (OSHA) and the College of American Pathologists (CAP); serves as AFIP liaison with U.S. Army Medical Command (MEDCOM) Safety Office; coordinates with the following Walter Reed Army Medical Center (WRAMC) departments - Safety Office, Occupational Health, Industrial Hygiene, Health Physics, Department of Public Works and the Fire Department. This office also serves as a member of many safety related committees; investigates all on-the-job injuries; and maintains a reference library of EPA, OSHA, DOD and local safety related publications. In keeping with the DOD goal of pollution prevention, this office operates five distillation units, which recycles alcohol, xylene and formalin back into the AFIP laboratories.

STAFF

Brenda L. Smith, MS, CSP, CHSP – Director, Biological Safety, Occupational Health and Environmental Management
Tyrone L. Green, MS, CHSP – Safety and Occupational Health Manager
Jerome D. Escoe – Safety Technician
Vacant – Office Administrator/Safety Tech

ACTIVITIES

The Office of Safety Management currently sits on the following committees: AFIP Safety Committee; AFIP Biosafety Committee; AFIP Physical Security/Biosurety Committee, AFIP Quality Assurance Committee; AFIP Commissioning Committee; AFIP Synchronization Committee; AFIP Facilities Committee; AFIP Space Committee; Installation Safety Committee; Installation Hazardous Substance Management System (HSMS) Committee; Environmental Overwatch Training Sub-Committee; Installation Plans and Implementation Sub-Committee; and Installation Asbestos Management Team.

The Office of Safety Management has sole responsibility for disposal of all AFIP's hazardous waste to the WRAMC Hazardous Waste Bunker. This also includes making many entries in the Hazardous Substance Management System (HSMS), a computerized tracking system mandated by DOD. This system tracks hazardous substances from receiving from the vendor through disposal (cradle-to-grave).

The Office of Safety Management presents all of the annual training required by OSHA (Hazardous Communication, Bloodborne Pathogen, and Fire Extinguisher Training) to the staff of AFIP. In compliance with General Farmers Environmental Compliance Campaign Plan, the Office of Safety Management conducts Hazardous and Universal Waste Management training.

The Office of Safety Management has been tasked with one a large new mission, the Waste Management Program. This includes the solvent distillation of xylene, alcohol and formalin; management of Regulated Medical Waste; monitoring of Hazardous (chemical) Waste; and

monitoring of the Silver Recovery Program. AFIP's current alcohol and xylene recycling equipment has proven great cost-savings in the past few years. In 2004 the Office of Safety Management recycled 234 gallons of alcohol and 280 gallons of xylene for a costs savings in purchase and disposal of \$26,657.00. Costs saving figures are not available for formalin since AFIP received the formalin recycling equipment in April of 2004.

Because of new regulatory requirements resulting from BioSurety and BioSafety, the Office of Safety Management has rapidly increased in it's area of responsibility. This institute has also recently opened two new biocontainment laboratories that are BSL-3. New research protocols are now being generated and approved by the Biosafety Committee and outside inspections have increased because of the new regulatory requirements.

GOALS

1. Develop a computerized training program to track required training on all AFIP employees.
2. Become more involved in Community Emergency Planning Programs and resource levels.
3. Establish and publish a monthly or quarterly Safety Newsletter.
4. Expand the AFIP Safety Program in order to investigate occupational illnesses and injuries more thoroughly.
5. Research the possibility of substituting nonhazardous chemicals for the current hazardous chemicals.
6. Continue to participate in the development and management of an Institute comprehensive occupational/industrial medicine program.
7. Investigate the feasibility of distilling alcohol, xylene and formalin for all Walter Reed Activities.



Nicole N. Jenkins
Acting Quality Assurance Coordinator
Date of Appointment – 3 August 2008

OFFICE OF QUALITY ASSURANCE

MISSION

The Office of Quality Assurance is responsible for the coordination of all quality assurance, risk management, and credentialing and privileging activities at the AFIP. Activities include:

- Ensuring compliance with the Institute's College of American Pathologists (CAP) accreditation requirements
- Maintenance of the AFIP/Military/Veterans Affairs Histopathology Quality Assessment Program (HQAP), Department of Veterans Affairs Systematic External Review of Surgical Cases Program, and our International Peer Review Programs
- Oversight and management of the AFIP Metrics Program
- Managing of the AFIP credentialing and privileging activities at the AFIP
- Program coordination for the AFIP Red Cross Volunteer Program and the AFIP/ARP Summer Intern Program

ORGANIZATION

The Office of Quality Assurance is composed of a Health System Specialist and two Support Services Specialists responsible for the management of the AFIP's credentialing and privileging activities, and the metrics program. The staff serves as advisors to the Service Line Directors as well as to the AFIP Director and the Executive Committee and report directly to the Director, Office of Quality and Compliance.

STAFF

Nicole N. Jenkins, Health System Specialist
Harold Lindmark, Credentials Administrator
Leslie A. Middleton, Metrics Administrator

ACTIVITIES

The Office of Quality Assurance engaged in the following activities in 2008:

- Coordinated the preparation of and conducted the AFIP's interim College of American Pathologists' inspection.
- Reviewed and updated AFIP Regulation 40-8, Veterans Affairs Pathology Review Program, AFIP Regulation 40-67, Medical Staff By-Laws, and AFIP Regulation 40-68, Quality Assurance Administration.
- Provided senior staff members' statistical data on case accessioning, management, and trends as requested.
- Implemented new report structure for the dissemination of case management metrics.
- Managed an external peer review program with the Brazilian Society of Pathology, State of Sao Paulo. On a bi-monthly basis 12-14 cases are sent to the AFIP for in-house review and six cases per year are sent to Brazil for their review.
- Administered the Histopathology Quality Assessment Program (HQAP). The HQAP is a quality assessment tool that is used to assist U.S. Military and Veterans Affairs Medical Center Departments of Pathology maintain their level of diagnostic ability for a variety

of pathology specimens. Four pathology cases are posted on the web quarterly, during the second month of each quarter for review and to diagnosis. Cases for this program are submitted on a rotational basis by AFIP departments. A case includes digital images and histories on the cases to be diagnosed, and discussion with references on the previous quarter's cases. Participants have from the first day of the month through midnight of the last day of the month to review the cases and provide their opinion of the diagnosis. After the review and diagnosis period, the participants' opinions of the diagnoses are electronically assembled by case and are forwarded to the contributing department/pathologist for scoring. Cases are scored correct, acceptable, or incorrect. Participants receive 1 CME credit for each case diagnosed. This program is also available to civilians for a fee. During 2008 this Program had 243 participants (military 6, VA 223, and 14 civilian) and these participants were awarded over 3,888 hours of Continuing Medical Education credit for participation, in the Program.

- Provided oversight to the Systematic External Review of Surgical Cases (SERS) Program. The Chief, Pathology and Laboratory Medicine Service at each VA Medical Center that performs surgical and cytology examinations selects and forwards to AFIP three significant surgical pathology cases every other month for a total of 18 cases per year. The cases are reviewed by AFIP with comments on significant features. Quarterly, the Office of Quality Assurance provides the VA chief Consultant for Diagnostic Services Strategic Health Group a report on participating VA medical centers. During 2008, 79 facilities submitted 944 cases to the SERS program.
- Managed the AFIP's American Red Cross Volunteer Program by providing orientation and administrative support to volunteers. American Red Cross volunteers serve the AFIP in numerous capacities such as providing administrative support to departments or working on education programs, research projects, serving as docents in the National Museum of Health and Medicine, and as histopathology technician trainees. During 2008 Red Cross volunteers provided over 6,542 volunteer hours to the AFIP.
- Coordinated and provided administrative oversight of the AFIP/ARP Intern Program. This Program provides the opportunity for high school and college students interested in pursuing a career in medicine and/or science an educational experience at the AFIP. Each student is assigned a mentor who provides hands-on and theoretical experience in the diverse field of laboratory medicine. Students attend weekly lectures, provided by AFIP staff that covers various topics in the field of pathology and laboratory medicine. Each student is also assigned a project that must be completed by the end of the Program and presented orally to staff and fellow interns. The program runs from the last week of June through the first week of August. During 2008, 17 students successfully completed the Program.

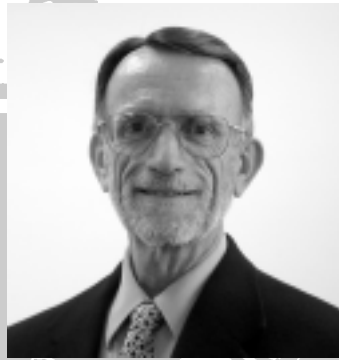
COMMITTEES:

1. Credentials Committee - N Jenkins, H Lindmark
2. Quality Assurance Committee - N Jenkins, L Middleton
3. Safety Committee - N Jenkins

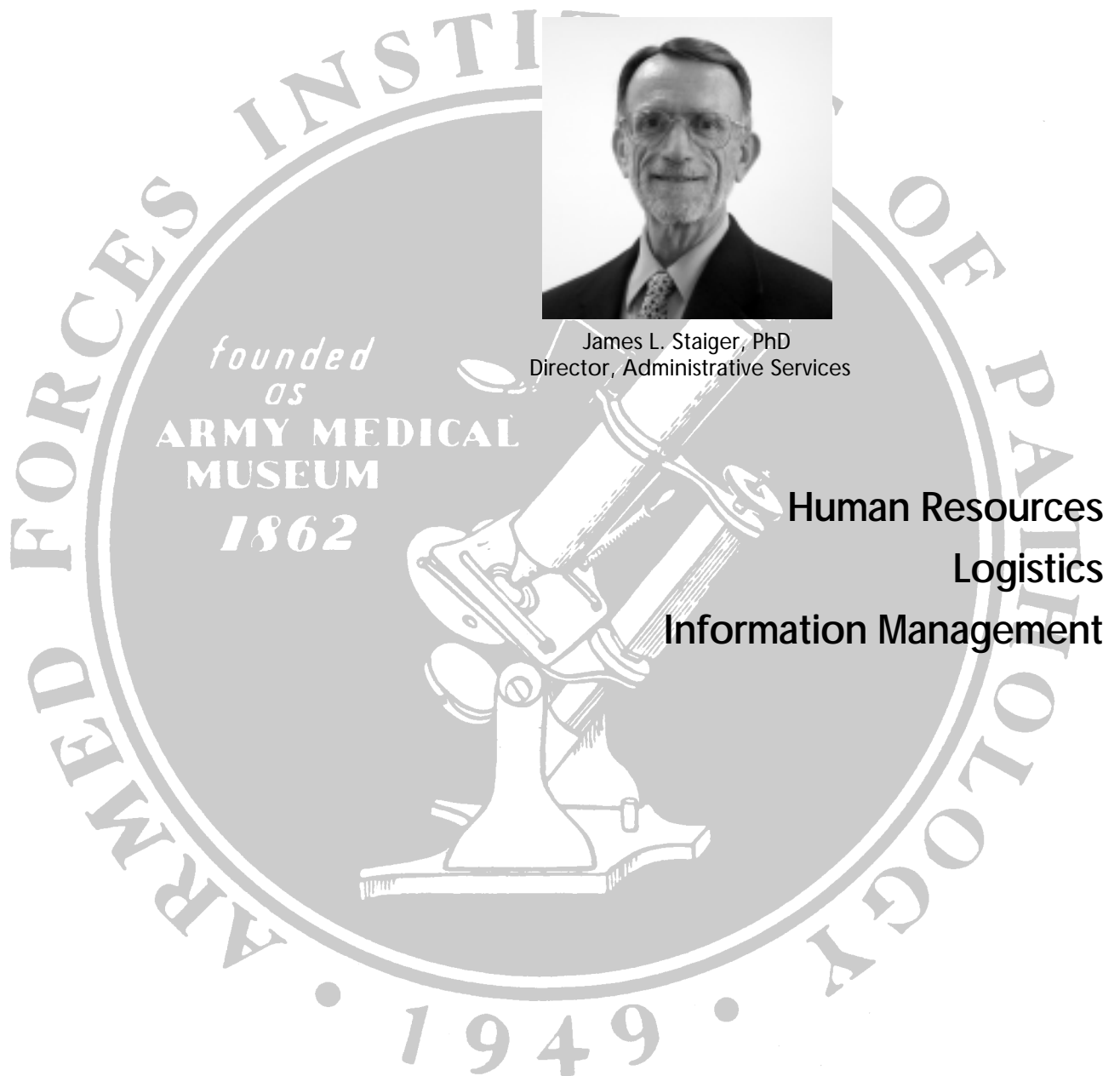
GOAL:

Ensure that the AFIP is fully prepared for the official unannounced College of American Pathologists' inspection.

DIRECTORATE OF ADMINISTRATIVE SERVICES



James L. Staiger, PhD
Director, Administrative Services



Human Resources
Logistics
Information Management



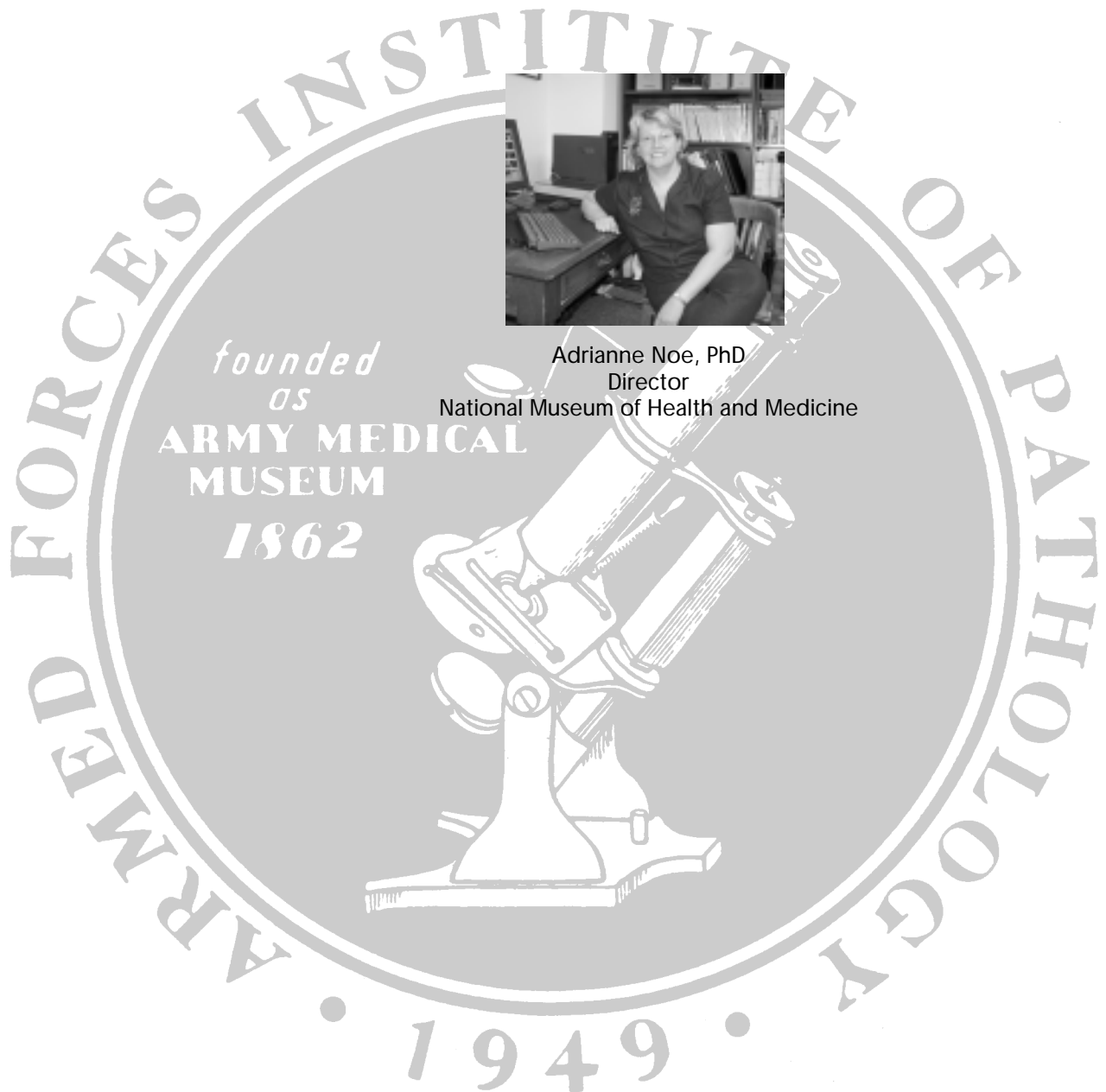
James L. Staiger, PhD
Director, Administrative Services — 21 January 2007

Director of Administrative Services	James L. Staiger, PhD
Support Service Specialist	Cheryl D. Parrish
Human Resources	James L. Staiger, MD
Personnel Management Division	Wendy S. Baker
Military Personnel Division	Andrew Garland, LCDR, MSC, USN
Civilian Personnel Division	Diane M. Day
Logistics Department	Harvey Soefer
Materiel Acquisition Division	Lanelle Chisolm
Facilities & Service	Cornelius L. Reeder
Facilities Maintenance Branch	Albert s. Tataglia
Environmental Services	Sonia Cross
Property Management Division	Michael Stanley
Property Branch	Rudolph Wynn
Medical Maintenance Branch	Willie Jenkins
Logistics Support Division	Sam Belton
HSMS Branch	Christopher Jordan
Receiving & Distribution Branch	Diedra Carey
Security Division & Reception Desk	Wilbur Bickering
Information Management	Albert Judd
Deputy Director	Theodore Blunt
Automation Management Service	Vacant
Developers	Guy Peay
User Support	Edwana Jones
Network Support/Tel	David Bryant
Records Forms Management	Bonnie Short
Digital Imaging Center	Douglas Landry
Exhibits Production	Larry Claiborne

NATIONAL MUSEUM OF HEALTH AND MEDICINE



Adrienne Noe, PhD
Director
National Museum of Health and Medicine





Adrienne Noe, PhD
Director
Date of Appointment—September 1995

NATIONAL MUSEUM OF HEALTH AND MEDICINE, AFIP

MISSION AND ACTIVITIES

The NMHM promotes the understanding of medicine—past, present, and future—with a special emphasis on American military medicine. It inspires interest in personal and public health. As the nation's museum of health and medicine since 1862, we aggressively identify, collect, and preserve important resources to achieve a broad agenda of innovative exhibitions, educational programs, and scientific, historical and medical investigations.

To achieve this, we promote the responsible use of the nation's National Historic Landmark collection by continuing to catalog the collections, to record detailed information about the holdings and to edit record to make databases available for the Internet, which allow the collection to be more accessible to researchers. We cultivate ties with professional medical societies and with the Department of Defense to assist in collecting artifacts significant to the history of the practice of medicine and the evolution of medical technology, emphasizing military medicine. Finally, we collect, preserve and interpret modern examples of significant medical technology to document the history of the practice of military medicine and the evolution of medical technology to ensure the continued development of the National Museum of Health and Medicine, AFIP, as a Department of Defense asset and as a national and international resource for the military medical community, professional health care workers and the general public.

In so doing, we emphasize the Museum's focus on critical public and military health issues, the importance of the Museum as a bridge between biomedicine and the general public, the Museum's role in helping to recruit the health professionals of tomorrow, and the Museum's research programs in medical medicine, medical imaging, and other areas.

ORGANIZATION

The Museum is organized into the Office of the Director, Public Programs and Exhibitions, and Collections and Research.

OFFICE OF THE DIRECTOR

Staff

Adrienne Noe, PhD
Donna R. White, Administrator
Tim Clarke, Jr., Deputy Director (Communications)
Jessica Stark, Public Affairs Specialist
Theresa Butler, Staff Assistant
Melba Stewart, Special Events and Facilities
Shelly Currie, Visitor Services Representative
Luis A. Pineda, Visitor Services Representative
David Martinez, Visitor Services Representative

The Office of the Director oversees the general activities and governance of all aspects of the Museum and provides policy, technical, and scientific direction. It directs all activities for the site, facility, and programs of the Museum as its activities evolve. Activities handled within the office are external and internal relations, governmental affairs, press and public relations, and institutional development. The office works with print and broadcast media, congressional offices, and local, national, and community organizations to encourage contract with the coverage of AFIP's National Museum of Health and Medicine. The office provides general supervision of the Office of Public Affairs, the Department of Programs and Exhibitions, and the Department of Collections and Research. The office of the Director communicates and coordinates with the American Registry of Pathology (PL94-361) and numerous public and private organizations for institutional development. The Director of the National Museum of Health and Medicine is a member of the AFIP Executive Committee.

Administrative Services

The Administrative Services staff continues to improve the quality of support provided to the departments of the Museum. This administrative group provides a variety of management services essential to the operation of the Museum in the areas of budgeting, manpower, personnel, contract administration, and organizational management. The staff, in conjunction with the AFIP Directorate of Logistics Department, supports the Museum in the following areas: physical security, storage movement, maintenance, repair and accountability of materials, housekeeping, exhibit upkeep and maintenance, waste collection and disposal, notification to the Provost Marshal of visitors attending special events and media filming. This notification is a part of the installation's ongoing security process.

This department serves as a Museum liaison with the AFIP Office of Safety Management and maintains an inventory of all hazardous chemicals located within the Museum. The department staffmembers serve on safety-related committees and also investigate all facilities safety issues concerning staff and visitors. The Facilities Department assisted in assembling and disassembling temporary exhibits and prepared maintenance requests for the gallery to house exhibits.

The staff also provided support to the AFIP, WRAMC and the surrounding community by hosting and scheduling annual events for WRAMC continuing education courses such as Medical Effects of Ionization Radiation, Medical Management of Chemical & Biological Casualties and Emergency Medical Technician Training. Staff also provided logistical assistance for NMHM-sponsored events such as docent meetings, training sessions and other educational programs.

Standard Operating Procedures for Museum meetings and receptions were given to the event planners and/or point of contact for events. The office staffs and secures each event with Visitor Service Representatives. We also offer each event planner and/or point of contact a list of specialty caterers familiar with the policy and procedures of the Museum. This office also assisted with the audio-visual needs of instructors, guest speakers, and event presenters.

The Gift Shop offers a variety of merchandise to visitors of all ages and educational interests.

The Gift Shop also advances the marketing efforts of the Museum and Institute and extends the effectiveness of the Museum's programs and exhibitions by selling objects related to Museum activities. Each object has a distinct connection with the Museum's mission and/or exhibits that are on display.

Office of the Registrar

The museum accessioned 550 objects, 10 biological specimens and 31 linear feet of archival material in 2008 acquired through purchase, government transfers and donations. The museum does not normally purchase items for the collection but made an exception for a daguerreotype depicting an individual with a medical condition taken by William Bell, an important 19th century photographer. The following sources transferred items to the museum: the United States Army; the United States Air Force; and the Department of Transportation, Maritime Administration. The following private individuals/organizations donated items to the museum:

Lila O. Asher; Dana E. Austin; Susan K. Budd; Stanley B. Burns, MD; Edward Burton; Deborah Heart and Lung Center; Carolyn Dingle; Janet Dryer; Jennifer Hanowell; Florence Haseltine; Eugene Hunter; Matthew Hunter; John M. King, DVM; estate of Alexander Letko, MD ; Martha McCravey, MD; Stuart Nightingale MD and Elena Ottolenghi Nightingale, M. D.;

James Olds; Thomas H. Porter; Alma Principi; Deborah Servis; Shen Sung; and the University of California, Los Angeles, Department of Bioengineering.

In 2008, the museum had four new outgoing loans of four objects and eight specimens borrowed for new exhibits by the following organizations: The National Museum of Natural History, Smithsonian Institution, Washington, DC; The Museum of Science and Industry, Tampa, FL; The National Gallery of Art, Washington, DC; and The Office of the Assistant Secretary of Defense (Health Affairs), Pentagon.

In addition to the new loans, the following organizations continued to borrow items for exhibition as part of a multi-year agreement or renewal through 2008:

Uniformed Services University of the Health Sciences, Bethesda, MD; Richmond National Battlefield, Richmond, VA; Dolan DNA Learning Center, Cold Spring Harbor, NY; The National Museum of Civil War Medicine, Frederick, MD; The American Civil War Center at Historic Tredegar, Richmond, VA; The Field Museum of Natural History, Chicago, IL; and the Exploratorium, San Francisco, CA.

The museum was also very active in borrowing items from organizations and private individuals all over the country to enhance two new exhibits developed by museum staff. The following 11 lenders contributed to these new exhibits in 2008:

Sally Squires; The National Civil War Museum, Harrisburg, PA; The National Hansen's Disease Museum, Carville, LA; Douglas Blankinship; Lt. Col Patricia Blassie; The Armed Forces Institute of Pathology Dept of Oral and Maxillofacial Pathology; Patricia Scharf; Cara Fraser; The Division of Physical Anthropology, Dept of Anthropology, National Museum of Natural History, Smithsonian Institution, Washington, DC; The Office of the Armed Forces Medical Examiner, AFMES, AFIP; and the Armed Forces DNA Identification Laboratory, AFMES, AFIP

Additional lenders to the museum's exhibit continuing from 2007 are:

The United States Army Quartermaster Museum, Fort Lee, VA; The Becker Medical Library, Washington University in St Louis, School of Medicine, St Louis, MO; The Federal Bureau of Investigation, Latent Print Unit, Quantico, VA; and the Joint POW/MIA Accounting Command, Central Identification Laboratory, HI.

PUBLIC AFFAIRS OFFICE

The Public Affairs Office at the National Museum of Health and Medicine (NMHM) remains committed to increasing awareness of the Museum and strengthening participation of our diverse audiences in the myriad of activities that take place at the institution. Core areas of activity include media relations, the Museum Web site, the Museum newsletter, and marketing. Fully embracing both internal and external communications responsibilities, the office has significantly broadened its reach and effectiveness in 2008.

Media Relations

- Major Media: Developing and expanding relationships with major media outlets is a primary business activity of the Public Affairs Office. In 2008, the Museum realized considerable success in this area. Increased exposure via earned media projects the Museum's mission, value and programs into the mainstream public as well into various specialized audiences. A core tactic remains our efforts to engage local and national military media outlets, or media representatives with a specific interest in military affairs. Below is a sample of key media placements:
 - *SharpBrains.com*, a popular blog that discusses the brain sciences, featured the Museum's ninth annual Brain Awareness Week in March
 - *What's Up, Annapolis* featured the Museum in its July/August issue
 - *Army Times* published a two-page spread that featured the Museum's new RESOLVED exhibit and offered a sidebar on the Museum's other exhibitions and history (August 2008)
 - *The Pentagon Channel* produced two segments on the Museum this year: the first featured the RESOLVED exhibit (August) and another discussed the Balad exhibit (December)
 - *The Danger Room*, a blog by *Wired* magazine, linked to the Museum's RESOLVED exhibit on September 4, 2008
 - WETA-TV (Channel 26, Washington, D.C.) included the Museum in its program 'Unusual Attractions' (September 2008)
 - The Museum's temporary exhibition on leprosy (Hansen's disease) was mentioned in

- a feature article in *The Washington Post's* Health section (Sally Squires, May 27, 2008)
- *The Pentagon*, base newspaper at Ft. Myer in Virginia, featured the RESOLVED exhibition (September 2008)
- *Rachael Ray* magazine spotlighted the Museum in a roundup of interesting DC museums (October 2008)
- *Government Health IT*, a trade newsletter, wrote up technological advancements in the sciences related to forensic identification, and featured the Museum's RESOLVED exhibition (October 2008)
- *The Washington Post's* Weekend section featured the Museum in a feature called 'The 3-Hour Weekend,' and highlighted the Museum's long-running exhibitions on Civil War medicine and the human body (October 24, 2008)
- *Chemical & Engineering News* interviewed Museum staffer Brian Spatola for an article on new formulas for preservation media (November 3, 2008)
- *The Washington Post's* online and print "Book World" section mentioned the Museum's Afternoon Coffee Talk on Mitch Yockelson's book, "Borrowed Soldiers: Americans Under British Command, 1918," on November 9, 2008
- *On Point*, the Journal of Army History, mentioned the Museum's RESOLVED exhibition in its Fall 2008 issue
- *The Washington Post* and *The Washington Examiner* mentioned the Museum's upcoming Lincoln Bicentennial exhibits and programs in several articles in early December 2008
- *MedGadget*, a popular blog featuring medical technology and advances, spotlighted the Museum's new 'Trauma Bay, II, Balad, Iraq' exhibit in a post on December 12, 2008
- *Veteran's Today*, a major online newsletter to the American veteran community, mentioned the Balad exhibit on December 31, 2008
- Of special note: In early 2008, the Museum continued its partnership with *The Scientist* magazine featuring brief articles by Museum staff. The section, called "Foundations," was featured on the magazine's back page.

Web site:

- The Museum's Web site remains the primary contact point for our visiting public and researcher audiences. It is regularly updated by Museum staff.
- The site averages as many 800,000 "hits" per month, and a monthly average of nearly 22,000 "unique visitors." (Based on a review of monthly Web site statistics for January 2008 to December 2008.)
- (Definition of "unique visitors": The number of individual people within a designated reporting timeframe, with activity consisting of one or more visits to the site. Each individual is counted only once.)
- Future plans for the Web site include integration of document and image databases that have been primarily available exclusively to researchers visiting the Museum; improved Web site statistics and trends tracking for better monitoring and data mining of the Museum's Internet audiences; a richer and more complete presentation of Museum news and events, featuring improved coverage of public programs.

Museum Newsletter:

- The Museum's newsletter, "*Flesh & Bones*," was on temporary hiatus through the first two quarters of 2008, but resumed its new quarterly publishing schedule with the Summer 2008 issue. Circulation in 2008 averaged 3,000 units each issue. The newsletter's readership includes internal AFIP departments and is mailed to media outlets, schools, libraries, and visitors who have signed up to receive the newsletter. "*Flesh & Bones*" features articles written by Museum staff focusing on new exhibitions, special public programs, recently acquired objects for the Museum's collections, and loans to other museums.
- 2008 also saw the start of a new monthly e-newsletter to subscribers, offering an updated look at Museum news and events.

Other Core Activities and Accomplishments:

- The Public Affairs Office engaged the local community and other key audiences with table displays at several events during 2008, including a display at the "Ask Me About Washington" program held in a Congressional office building to educate Members of Congress and their staff about local Washington, DC area cultural and historical institutions.

- The Museum remains an active member of Cultural Tourism DC, a coalition of arts, heritage, cultural, and community organizations that works to make Washington, DC a world-class destination for cultural tourism. Museum staff network with other museum representatives via CTDC and seek out new partnership opportunities.
- The Public Affairs Office partnered with the Public Programs staff to prepare programs and marketing materials for the upcoming Lincoln Bicentennial in 2009. Plans for April 2009 include a symposium on Lincoln's health. A special revamped exhibit of Lincoln artifacts will open in February 2009.
- The Public Affairs Office placed advertisements in several different military newspapers published by Comprint Military Publications, promoting the Museum and its new exhibits.
- The Public Affairs Office hosted National History Day scholars and their award-winning projects. Students selected from Michigan and New York visited the Museum for a behind-the-scenes tour and presented their work to Museum and AFIP staff reflecting the year's theme, "Conflict & Compromise in History." Their topics included the effects of DDT on the environment and how persons with disabilities succeed in medicine. Their exhibits were on display at the Museum through September.

PUBLIC PROGRAMS AND EXHIBITIONS

The division directs and coordinates operational and interpretive components of the Museum. This includes administration, exhibitions, public programs, educational tours, facilities use, and related activities. Division staff worked with governmental agencies, professional associations, museums, and individuals to develop interpretive strategies that promote greater public awareness of contemporary and historical perspectives on disease, public health, and health education.

STAFF

Steven Hill, Exhibits Manager
Andrea K. Schierkolk, Public Programs Coordinator
(A) Gwen Nelmes, MA, Tour Program Manager
(D) William Discher, Exhibits Specialist
(A) Navjeet Singh Chhina

Docents:

Solomon E. Barr, MD; Ethan Beaudett; Ed Beeman, MD; Myron Bernstein, MD; Edward Byrde, BS Ph; Gabriella Cantoni; Delores Christie, MS; James DePersis; Caitlin Duigan; Bernardine Evans, MA; Martha Gladden; Regina Hunt, MEE; Brenda Kiessling, MD; Pam Kincheloe, BSN, JD; Lew E. Larson, BSEE; May Lesar, MD; Sheila Lopez; Kate Lurain, MA; Anne Pollin; Andrea Rander; Juanita Rogers; Enid Rosen, BS; Andi Sacks; Marjorie D. Shaw, PhD; Marianne Solfronk, MS; Shen Sung, MD; Carolyn Whittenberg, MSN; Jerome Wilson, MA, PhD, Hanein Edress

Museum Volunteers:

S. Stephen Schiaffino, PhD

Public Programs

Overall attendance at the Museum in 2008 was 44,641. This number includes attendance to permanent and special exhibitions, public programs, and non-public Museum programs. Also included in this number are audiences who attended special events such as receptions for organizations with missions related to those of the Museum and/or AFIP, meetings, courses or training presented by various divisions of AFIP and WRAMC. The overall attendance in 2008 increased by 3% compared to last year. The number of guided tours decreased in 2008 by 2%, yet the attendance for these tours increased by 10%. The number of unguided tours decreased by 50%, with the number of visitors participating in unguided tours increasing by 10%. There were also increases in numbers of individuals attending Public Programs by 18% and a decrease in attendance at Special Events by 50%.

On a monthly basis, several public programs were offered to members of the AFIP, WRAMC, and local military communities; all were open to and promoted to the public as well. They included programs to complement new exhibitions, to commemorate holidays or special days, to highlight military medicine, to provide family-oriented activities, and to meet the needs of community groups.

Examples include:

- Family program called “Express Yourself” with Abrakadoodle to complement the “Expression of Hope” exhibition
- Movie screening/filmmaker lecture for the “Triumph at Carville” documentary to complement the “Triumph at Carville” exhibition
- Family program, “Forensic Odontology” (in cooperation with AFIP’s forensic odontologists)
- Family program to celebrate Halloween (pasta skeleton craft and scavenger hunt)
- Girl Scouts forensics merit badge program that complemented the “Resolved” exhibition
- “Coffee Talks”: “The History of Leprosy in America”, by Wayne Meyers, PhD, AFIP; “Carville: the Landscape of Stigma,” by Elizabeth Schexnyder, curator of the National Hansen’s Disease Museum; “The National Hansen’s Disease Program and the Need for an Awareness of Leprosy in the U.S.,” by Jim Krahenbuhl, PhD, director of the federal National Hansen’s Disease Program; “Limb Labs” by Beth Linker, PhD, Associate Professor of History, University of Pennsylvania and Jeffrey Reznick, PhD, Honorary Research Fellow in the Center for First World War Studies at the University of Birmingham and Director of the Institute for the Study of Occupation and Health, AOTF
- National Hairball Awareness Day exhibit and talk
- Special tour of the Museum’s exhibitions to commemorate National Doctor’s Day and National Nurse’s Day
- Women’s History Month film screening of “The Hidden Army” and lecture called “American Red Cross Women: Embracing Opportunity,” by Thomas B. Goehner, Manager, Historical Outreach, American Red Cross National Headquarters
- Independence Day film screening and discussion of the motion picture “Gettysburg”
- Black History month film screening, discussion, and exhibit related to the motion picture “Glory” and Black History Month film screening of “Eyes on the Prize” for AFIP/WRAMC community
- Community health fair in partnership with Health Pact, Inc., Columbia Heights Lions Club, DC Diabetes Prevention and Control Program, DC Healthy Families, Food and Friends, Men’s Health Network, National Ovarian Cancer Coalition of Northern Virginia, and Prevention of Blindness Society of Metropolitan Washington
- Monthly Poetry and Prose programs for the Wounded Warriors

Other Events and Programs

Collaborations

The NMHM collaborated for the ninth year with Dana Alliance for Brain Initiatives in a five-day celebration of “Brain Awareness Week 2008” in March. This year 92 presenters interacted with 844 middle school students representing 22 public and private schools, as well as several home school networks, from Virginia, Maryland, and the District of Columbia. Students had the opportunity to participate in lectures, activities, and opportunities to interact with local neuroscientists. Students also got to see, touch, and learn all about the human brain. Neuroscientists, medical professionals and technicians, and educators from Rutgers University (Rutgers); National Institutes of Health (NIH); Georgetown University (GU); George Washington University’s Center for Education and Human Services in Acquired Brain Injury (GWU); Howard University (HU); WRAMC’s Defense and Veterans Brain Injury Center (DVBIC); and WRAMC’s Army Audiology and Speech Center partnered with NMHM and Dana to present lectures and hands-on activities for elementary, middle, and high school students. Members of the Potomac Chapter of the Society for Neuroscience participated as volunteers for the program and coordinated efforts with the District of Columbia’s Mayor’s Office to issue a proclamation declaring March 12-16, 2007, as Brain Awareness Week in the District.

Sean T. Manion, PhD, of the Potomac Chapter, Society for Neuroscience (SfN); Luke Johnson, PhD of SfN; Felicia Qashu of SfN; Norah Harwood of SfN; Rachel Ribeiro of SfN; Amy Starosciak of SfN; Joseph Abbah of SfN; Barry R. Komisaruk (Rutgers); Nancy J. Kaywood of the Bob Woodruff Family Fund; Anne Decker of the National Institute on Aging (NIA) of NIH; Suzana Petanceska, PhD of NIA of NIH; Catherine Sasek, PhD, of the National Institute on Drug Abuse (NIDA) of NIH; Jane Acri, PhD of NIDA of NIH; Allison Chausmer, PhD, of NIDA of NIH; David Thomas, PhD of NIDA of NIH; Roger Sorenson, PhD, of NIDA of NIH; Dennis A. Twombly, PhD, of National Institute on Alcohol Abuse and Alcoholism (NIAAA) of NIH; Phyllis Quartey of the National Institute of Mental Health (NIMH) of NIH; Nancy Hart of the National Institute of Neurological Disorders and Stroke (NINDS) of NIH; Daofen Chen, PhD of NINDS of NIH; Lynn Morin of NINDS of NIH; Daniel Stimson, PhD of NINDS of NIH; Jennifer

Mehren, PhD of NINDS of NIH; Marian Emr of NINDS of NIH; Kebreten F. Manaye, MD, of Howard University (HU); Yousef Tizabi, PhD of HU; Werner Graf, MD, PhD of HU; Rachel Dubin of HU; Wayne D. Johnson II, PhD of HU; Eva K. Polston of HU; Justin Wilson, BSc of HU; Heidi Griffith of HU; Marjorie Shaw, PhD of HU; Marjorie Gondre-Lewis, PhD of HU; I. Davila-Garcia, PhD of HU; Amy Drew, MSc of HU; Benjamin Walker, PhD, Georgetown University (GU); Devon Brose of GU; Anna Mikulak of GU; Rachel Bauer of George Washington University (GWU); Hanna Medlin of GWU; Aishah Bilal of GWU; Kya Mathews of GWU; Anne Molloy of GWU; Joseph Richert II of GWU; La'Shawndra Scroggins of GWU; Zavolia Willis of GWU; Gerald Schuchman, MD, of Walter Reed Army Medical Center Audiology Center (WRAMC Audiology); Joan Tendrich, MA, of WRAMC Audiology; Robin Pinto of WRAMC Audiology; Holly Burrow of WRAMC Audiology; Laura Winder of WRAMC Audiology; Jessica Barrett of WRAMC Audiology; Dale Ostler of WRAMC Audiology; Tara Dean, MS, CCC-SLP, of Walter Reed Army Medical Center Speech Pathology Center (WRAMC Speech); Heidi Bassani of WRAMC Speech; Amanda Gillespie of WRAMC Speech; Leah Horst of WRAMC Speech; Danielle Katen of WRAMC Speech; Athena Kendall-Robbins, MA, of the Defense and Veterans Brain Injury Center (DVBIC); Thomas G. West; James Smirniotopoulos, MD, of the Armed Forces Institute of Pathology, Neuropathology; Michele Wagner of the National Sleep Foundation, Inc.; Colleen McNerney of the Society for Neuroscience (SfN); Nadine Costello of SfN; Betsy Schultz of SfN; Andrew Wallace of SfN; Kelly Smith of SfN; Claire MacDonald of SfN; Juanita Young of SfN; Randall Winnette of SfN; Corinne Dreskin of SfN; Lionel Megino of SfN; Danah Stewart of SfN; Nadine Kampman of SfN; Jessica Pearce of SfN; Karen Graham of Charles Dana Alliance for Brain Initiatives; and Archie Fobbs, collections manager of the Museum's Neuroanatomical Collections provided lectures, hands-on activities and technical demonstrations that highlighted various brain functions and other developments in the field of neuroscience.

Ongoing Programs

The Museum continued to offer guided tours on the weekend to walk-in visitors on the second and fourth Saturday of each month.

From August to December, Museum docents and staff offered Forensic Family Discovery Cart activities on the second and fourth Saturday of each month to compliment the new "RESOLVED" exhibition. Visitors participated in hands-on activities related to identification of human remains, including forensic anthropology, forensic dentistry, fingerprinting, DNA extraction, and material evidence.

Tour/Docent Program

The Museum acquired a Tour Mate audio tour system, which consists of 30 listening wands loaded with a random-access audio tour for use during self-guided individual and group tours. The audio tour includes a highlights tour of the Museum's permanent exhibits as well as a tour of the new "Resolved" and "Balad" exhibitions.

Pre-visit materials for tour groups were enhanced and expanded with the addition of materials for PreK-2nd grade, 3-5th grade, 6-8th grade, and 9-12th grade. To disseminate these resources, staff participated in a Montgomery County Public School elementary and middle school science teacher course that took place at the Museum, sharing with them information about the museum's school programs.

In addition to the General tour, which introduces visitors to the highlights of the exhibition galleries, the following Curriculum Connection tours were offered during 2007: "Human Body, Human Being" and "To Bind up the Nation's Wounds: Medicine during the Civil War." Self-guided visits to the museum continued to be complimented by general and forensics-focused "discovery sheets." The "Forensics Mystery" workshop, a popular hands-on activity for students, families, and adults, was re-designed to compliment the new "RESOLVED" exhibition. The new scenario guides visitors through the identification process involved in resolving the case of a deceased service member who is killed during the current military conflict.

Docents, museum staff, and AFIP staff benefited from educational presentations made at monthly docent meetings, which draw upon the generous personal and professional contributions of local and more distant experts in areas related to the Museum's programs, exhibitions, and topics of general medical and historical interest. In January, Franklin Damann, curator of the Museum's Anatomical Collections made a presentation about plans for the Museum's new exhibition called "RESOLVED: Forensic Identification of U.S. War Dead." In February Robert Slawson, MD, docent at the National Museum of Civil War Medicine, shared

his research about African American Surgeons during the Civil War. In March, Thomas B. Goehner, American Red Cross Historical Outreach Manager, gave a presentation entitled, "American Red Cross Women: Embracing Opportunity." In April, Pusha Tandon, NIH gave a presentation entitled, "Neurodegenerative Diseases: Alzheimer's." In May, the docents participated in a tour of two Washington, DC sites, Fort Stevens Battleground and the Decatur House, followed by a luncheon to commemorate their past year's volunteer service. In July and August, docents participated in training for the updated forensic workshops and guided tours of the new exhibition, "RESOLVED." In September, Franklin Damann provided a talk about his experiences during his employment with the Joint POW/MIA Accounting Command, focusing on several of the recovery missions that he participated in. In October, Alan Hawk and James Curley, from the Museum's Historical Collections provided a talk and a behind-the-scenes tour of the new exhibition, "Trauma Bay II: Balad, Iraq." In December the docents toured the Military Advanced Training Center (Physical Therapy Clinic), WRAMC.

In October and November six new recruits participated in training for a new Docent Greeter program, including Andrea Rander, Ethan Beaudett, Martha Gladden, May Lesar, Andi Sack, Myron Bernstein, MD, and Hanein Edress. These volunteers will provide an additional volunteer presence in the lobby and in the exhibitions to enhance visitor services. The Docent Greeters will relieve the Visitor Services Representatives upon request, greet visitors, and provide impromptu tours of the Museum.

Professional Activities

Official Trips/Presentations

November 2008: Society for Neuroscience, Annual Meeting, Washington, DC, presentation of "Brain Awareness Events at the National Museum of Health and Medicine/AFIP," AK Schierkolk, EL Lockett, R Bernard-Saskiw, AJ Fobbs, KB Graham.

EXHIBITS

2008 saw the installation of several temporary exhibits, up-grading of permanent exhibits, and de-installation/re-installation of a major permanent exhibit. Two 2007 exhibits were de-installed in early 2008 to make way for major NMHM staff created exhibit "Resolved: Advances in Forensic Identification of US War Dead." These were "Estrogen Tales," an exhibit of science and art based on works of Mara Haseltine and the research of NIH scientist Huyen Kim, and "Expressions of Hope," an exhibit of artworks done by and for persons suffering from lysosomal storage disorders.

The temporary exhibit "Miracle at Carville" was opened in March 2008. This project grew from an initial request for a few artifacts on display for the opening reception of the PBS film "Miracle at Carville," and expanded to become an extensive exhibit of artifacts and artwork from the National Hansen's Disease Museum in Louisiana, supplemented by artifacts from NMHM and private collections.

Two major NMHM created exhibits were opened in 2008: "Resolved: Advances in Forensic Identification of US War Dead" and "Trauma Bay II, Balad, Iraq." "Resolved" was opened to the public on the 4th of July weekend. This exhibit was generated and executed entirely by NMHM personnel; all staff areas contributed; curation was led by Franklin Damann of the Anatomical Collections.

"Balad, Iraq" was also generated entirely by Museum staff, with Alan Hawk of Historical Collections taking the lead. The exhibit is based on a large section of hospital tent and concrete floor of Bay II, Balad Base Hospital, shipped to the NMHM from its original site in Iraq. The exhibit was opened to the public in early December.

In the second half of 2008 the Exhibits Department assisted the Office of the Assistant Secretary of Defense for Health Services in the design, procurement, and installation of an exhibit in the outer and inner office reception areas of the OASD(HA) suite in the Pentagon. In addition to creating the design and specifications for overall display, design and production of all graphics, the NMHM Exhibits Department shepherded the project through all phases of construction and installation by commercial contractors.

During 2008 the Exhibits Department procured ten new display cases, four for non-artifact displays, and six table-top level cases with varying sized acrylic vitrine covers to be used for temporary exhibits of especially sensitive or fragile artifacts. These cases were all purpose-designed by Exhibits Department with input from NMHM Registrar.

As in two previous years, exhibits in the Human Body display area were affected by building

repairs/upgrades. The west wall was re-waterproofed and re-plastered and painted. This involved shifting several non-permanent wall sections and reconfiguring several portions of the display. Later in year a conduit had to be run through the exhibit area to route necessary electrical and computer wiring to Hammond Hall collections storage/office areas—other than planning and coordination, this did not adversely disrupt the exhibit area.

The Exhibit Department supported the annual Brain Awareness Week and supported PAO and Public Programs on an as-needed basis throughout year.

During 2008 the Exhibits Department added a new (replacement) staff member: Navjeet Chhina was hired to fill the Museum Specialist/Graphics position that had been vacated in late 2007. Chhina has been largely responsible for the new “look” of the Museum’s exhibit halls.

COLLECTIONS

OVERALL IMPACT

The collections divisions of the NMHM collect and preserve materials representing key subject areas in the history and practice of American medicine, military medicine, and modern medical and health issues and research. Each collecting division specializes in different media and subject areas. Overall the responsibilities of the divisions are to (1) provide the highest level of professional care to the NMHM collections and their associated documentation; (2) collect objects, specimens, and related archival materials deemed significant and relevant to the mission of the NMHM; and (3) support research, exhibits and public programs through access to collections.

ANATOMICAL COLLECTIONS

STAFF

Franklin Damann, Curator
Brian Spatola, Collections Manager

The Anatomical Division collects and preserves human and non-human anatomical specimens and associated materials documenting normal anatomy and the response to disease and injury and makes them available for research. The collections are of interest to physicians and medical researchers, dentists, historians of medicine, military historians and genealogists, paleopathologists, anatomists, physical anthropologists, and forensic scientists.

Consultation

The Anatomical Collections Division answered an estimated 34 collections based research requests in 2008. Many of these researchers visited the collections and several requested digital photos of specimens. Primary areas of interest for requests included Civil War genealogy, physical anthropology, forensic anthropology, presidential assassinations, veterinary specimens associated with the space program, ballistics and trauma, and lineal descendants of patients referred to the Army Medical Museum in the first half of the 20th century among others. Researchers represent faculty at several universities, the Smithsonian Institution, graduate students, and members of the federal service and general public.

Education

Spatola and Damann served as faculty for forensic anthropology workshops in the 44th Annual Forensic Dental Identification and Emerging Technologies Course at the Hyatt Regency Hotel, Bethesda, MD, on 13 and 14 March 2008.

Spatola and Damann co-directed the 21st Annual AFIP Forensic Anthropology Course held at the National Transportation Safety Board Training Facility in Ashburn, VA, from 9-13 June 2008.

Members of the anatomical staff gave presentations to professionals and students at multiple venues.

- Damann spoke about the RESOLVED exhibition at the AFIP Regularly Scheduled Conference on 9 January 2008
- Spatola and Damann coordinated with the AFIP Department of Orthopedic pathology and assisted with AFIP 34th Annual Orthopedic Pathology short course by providing gross specimens for student review on 10-11 April 2008.

- Spatola and Damann gave a three-hour mini forensic anthropology workshop to American University students in the Department of Anthropology on 7 November 2008.
- Damann gave a one hour lecture at the Department of Biology, York College, York PA on 19 November 2008

Research

Spatola has undertaken several collections management projects in 2008.

- Spatola completed inventory, relabeling and reorganization of the General Collection of Bone material (704 specimens in three cabinets); the bezoar collection (14 boxes and 40 specimens) in 2 drawers; cranial material from NYC ME collections (170 specimens in 6 drawers) for a total of 928 specimens or 7% of all cataloged material in the Anatomical Division.
- Completed data mapping for EMu migration in collaboration with KE Software staff. Reconciled dozens of specimens previously listed as “Found in Collections” and reassociated portions of specimens whose history had been lost.
- Accessioned material comprised of prehistoric skeletons from Dachau, Germany turned over to AFIP in 1949.

Anatomical Collections acquired new collections in support of research and education activities:

- 404 mostly human skeletal specimens from the Maryland State Anatomical Board comprised of anatomical teaching material of single bones with some pathology.
- 10 fetal specimens were donated by a colleague from Texas A&M University Medical Center.

Damann and Spatola continued long-term research project with AFIP Histology Labs, the JPAC Central Identification Laboratory, and the OCME New York City into the conservation and use of the human and nonhuman Ellis R Kerley bone slides that are used in forensic science for adult age estimation.

Damann and Spatola co-curated an exhibition titled, “Resolved: Advances in the Forensic Identification of US War Dead” that opened in August 2008, with a celebration that took place on 3 December 2008. The celebration was sponsored in part by Promega through a \$6,000.00 donation to ARP.

Damann received a \$270,390 2-year grant from the National Institute of Justice for research and development in forensic anthropology, funding Opportunity No. 2008-NIJ-1698 SL# 000802 in September 2008. The research project is titled Development of Methods for Estimating Postmortem Internal and Body relocation based on Biomarkers of Human Decomposition Ecology.

Professional Activities

Spatola and Damann participated in the second meeting of the Scientific Working Group Forensic Anthropology (SWGANTH) sponsored by the FBI and JPAC CIL held at AFIP OAFME, Rockville, MD 28 – 30 May 2008.

Presentations were given and abstracts published by staff of the Anatomical Division

- Damann FE, Adler R, Benedix DC, Kontanis E. Patterns of perimortem fracture from military aircraft crashes for the 60th Annual meeting of the American Academy of Forensic Sciences held in Washington, DC, from 18–23 February 2008.
- Spatola BF and Damann FE. A Summary of Trauma Specimens at the Armed Forces Institute of Pathology, National Museum of Health and Medicine for the 60th Annual meeting of the American Academy of Forensic Sciences held in Washington, DC, from 18–23 February 2008.
- Spatola BF. Paleopathology collections at the National Museum of Health and Medicine for the Annual Paleopathology Association Student Group held in conjunction with the 77th Annual meeting of the American Association of Physical Anthropologists held in Columbus, OH from 7–11 April 2008.
- Hunt D and Spatola BF. History and Demographic Profile of the George S. Huntington Collection at the Smithsonian Institution for the 77th Annual meeting of the American Association of Physical Anthropologists held in Columbus, OH from 7–11 April 2008.
- Damann FE. New Directions in Forensic Taphonomy: History and Structure of Taphonomy for the 18th Triannual meeting of the International Association of Forensic Sciences, held in New Orleans, LA on 21 July 2008.

- Jans ME and Damann FE, Co-Directors, Workshop #5. Life after Death: New Directions in Forensic Taphonomy. 18th Triennial meeting of the International Association of Forensic Sciences

Other activities

Interviews with media were conducted by members of the Anatomical staff.

- Damann was interviewed about the RESOLVED exhibit by *Government Health IT* with the subsequent article published on 18 September 2008, *The Army Times* with the subsequent article published on 22 September 2008, and the Pentagon Channel News Program that aired in early August 2008.
- Damann provided an interview for the The History Channel for filming of *Monster Quest, Season 2: Vampires in America*. This program included a segment of the Museum's holdings, accession# 1996.0003.01(JB).
- Spatola and Damann assisted a National Geographic film crew with recording evidence of gunshot wound, blunt and sharp force trauma for a program involving trauma interpretation of skeletons recovered in Peru.
- Spatola was interviewed on wet-tissue preservation techniques for the publication *Chemical and Engineering News*, with the subsequent article "Seeking an eternal solution: fluorinated fluid is the protagonist of an ongoing experiment in preserving biological specimens," published 3 November 2008, volume 86 (44), pp25-29.

Damann and Spatola provided support to OASME morgue operations at Dover Air Force Base on an as needed basis throughout the year.

NEUROANATOMICAL COLLECTIONS

The collection encourages use of its resources by all qualified members of the research community as part of its role within the Armed Forces Institute of Pathology and the National Museum of Health and Medicine. This division collects and preserves valuable artifacts of neuroanatomy, and strives to become the premier repository in the United States for collections focusing on human and comparative neuroanatomy.

The division includes the following collections:

Yakovlev-Haleem Neuropathology and Development Collection
Blackburn-Newmann Collection
Lindenburg Forensic Pathology Collection
Welker Comparative Neuroanatomy Collection
Rubenstein Collection
Adolph Meyer Neuropathology and Development Collection
Isabel Lockhard Comparative Neuroanatomy Collection
The Poulos Anatomical Collection
Denny-Brown Neuromuscular Collection
M. Allen Starr Collection
William Cruce Collection
Harrison Collection
John I. Johnson Comparative Collection
C. Miller Fisher Neuroanatomical
Diane Smith Comparative Neuroanatomy Collection

Consultation

Many researchers used the Neuroanatomical Collections during 2008. Collaborating researchers include:

- John I. Johnson, PhD, Department of Anatomy, Michigan State University.
- Wally I. Welker, PhD, Department of Physiology, University of Wisconsin-Madison
- John Allman, PhD, Hixon Professor of Neurobiology, Division of Biology, California Institute of Technology.
- Kebreten Manaye, MD, Department of Physiology and Physics, Howard University College of Medicine.
- Lori Marino, PhD, Neuroscience and Behavioral Biology Program, Emory University
- Robert Switzer III, PhD, Neuroscience Associates, Inc.
- Manuel F. Casanova, MD, Gottfried and Gisela Kolb Endowed Chair in Psychiatry University of Louisville Department of Psychiatry.

- William W. Seeley, MD, Clinical Fellow in Behavioral Neurology, University California San Francisco, Memory & Aging Center.
- Karen Graham, Dana Alliance for Brain Initiatives.
- John Morris, Neuroscience Program, Michigan State University.
- Jason Kaufman, PhD, Division of Biology, California Institute of Technology.
- Richard S. Nowakowski, PhD, Department of Neuroscience and Cell Biology, University of Medicine and Dentistry of New Jersey.
- William W. Seeley, MD, Memory and Aging Center, University of California at San Francisco, San Francisco, Calif.
- Carolyn Ikpeama, Student Program Director, St. Louis Science Center, St Louis, Science Scope.
- Jose Ramos, Graphics Research Supervisor, Exhibition Department, American Museum of National History, New York, NY.
- Barabara Birnman, Public Affairs Specialist, National Institutes of Health, Frederick, Md.
- Julie Korenberg, MD, Department Medical Genetics, Cedar Sinai, Los Angeles, Calif.
- Patrick Hof, MD, Department of Geriatrics, Mount Sinai School of Medicine, New York, NY.
- T Xu, Department of Physiology and Biophysics, Howard University, Washington, DC.
- Y Sharma, Department of Physiology and Biophysics, Howard University, Washington, DC.
- CJ Bonar, Cleveland Metro Parks Zoo, Cleveland, OH.

Activities

- Archie Fobbs, Collections Manager of the Neuroanatomical Collections, along with Dr. John Allman of the California Institute of Technology, Dr. Kebreten Manaye of Howard University, and Drs. Julie Korenburg and Patrick Hof of Cedars-Sinai Medical Center continue to work on a multi-year, Dr. William Seeley, of Clinical Fellow in Behavioral Neurology, University California San Francisco, Memory & Aging Center, and Dr Chet Sherwood of George Washington University, continued and completed a three-year \$1.8 million research grant from the James S. McDonnell Foundation, to be used for brain research on Von Economo cells that are important for social behavior.
- John Allman PhD, Division of Biology, Caltech University, Pasadena, California and his staff, in collaboration with Neuroanatomical collections staff, conducted research on developing spindle cells and their correspondence to fetal development and adult mental illness. Stereology (algorithmic mapping) of the human and other mammalian brains project is ongoing with Dr. Allman's group.
- The Neuroanatomical Collections were instrumental in providing valuable educational experiences for students from the Rappahannock High School, Swanson Middle School, George Washington University, and Howard University.
- Research using collections assets was facilitated by its presence on web sites: www.brainmuseum.org as well as through mirror sites at <http://www.manateebrain.org>; <http://www.brains.rad.msu.edu> (the Michigan State portal); and <http://turing.comtechlab.msu.edu/default.htm> (database site).
- The University of Wisconsin-Madison and Michigan State University continued to maintain these websites. Collection inquiries via the website increased throughout the year. Requests for collection images, scheduled visits to the collections division and to the museum have all increased as a result of the website. The website receives about 200 hits per day from around the world. Educators continue to report that the website is a useful resource for curriculum development, science projects, and answering structural and functional questions about the brain.
- Brain Awareness Week (March 2008) held at the National Museum of Health and Medicine brought together over 1,000 school age students from Virginia, the District, and Maryland. This event also involved other federal agencies including NASA and NIH as well as numerous regional universities, medical schools, federal entities, and independent scholars and others. The Neuroanatomical collections staff, the AFIP, the Dana Alliance for Brain Initiatives, and the National Institutes of Health collaborated on the program as principals.

Conservation

- Collection staff continued to identify and pursue conservation priorities with specific attention to the Yakovlev-Haleem Collection glass slides in preparation for a move to a

new facility.

- Paper documents associated with the Blackburn-Newmann Collection were digitized as well as records of Yakovlev-Haleem, Welker, and Johnson.

Equipment

- One stereology computer system was purchased with support from the J. McDonnell Foundation and John Allman, PhD.

Presentations

During the year, AJ Fobbs completed several presentations and outreach programs.

- February 2008: Viruses that affect the nervous system, Swanson Middle School, Arlington, VA
- March 2008: Brain Awareness, National Museum of Health and Medicine, Washington DC
- April 2008: Neuropathologies and you are affected, Bladensburg High School, Bladensburg, MD
- April 2008: How the brain learns, Chabot Science Center, Oakland, CA
- May 2008: Brain Function: National Institute of Health, Take Your Child to Work Day, Bethesda, MD
- July 2008: Unlocking the Mystery of the Mind, National Cancer Institute, Take Your Child to Work Day, Fort Dietrich, Fredrick, MD
- October 2008: Brain function and the process of learning, Sci-Fest 2008, St. Louis Science Center, St. Louis, MO
- November 2008: Brain Awareness Events at the National Museum of Health and Medicine/AFIP, Society for Neuroscience Annual Meeting, Washington, DC
- November 2008: Arrangement of sensory receiving areas in insular cortex, Society for Neuroscience Annual Meeting, Washington, DC

Media

- AJ Fobbs was interviewed for NIH Podcast during Brain Awareness Week (March 2008) held at the National Museum of Health and Medicine AFIP.
- AJ Fobbs was interviewed for WRAMC TV news story about Brain Awareness Week (March 2008) held at the National Museum of Health and Medicine AFIP.
- Dr. Allman prepared an essay about the NMHM Neuroanatomical collections for the Foundations column of *The Scientist* that appeared in March 2008. Allman, J. (2008) A brain collection, 1862 – present. *The Scientist* 22(3):100.

HISTORICAL COLLECTIONS

STAFF

Alan Hawk, Collections Manager
(A) James Curley, Assistant Collections Manager
(D) Vincent Neaz, Photographer
Gloria Feeney, Volunteer

IMPACT

The Division of Historical Collection acquires and preserves both artifacts of record and of note documenting the history of the practice of medicine, innovations in biomedical research and the evolution of medical technology. The collection emphasizes the role of the Armed Services of the United States, United States Public Health Service and the United States federal government as it relates to the above themes. The collection is made available for the education of medical professionals, Department of Defense personnel, historians and the public through exhibits in the museum, loans to other institutions and individualized study.

CONSULTATION

1. Nature and significance of consultative work: please see impact statement above.
2. Consultation statistics

<i>Cases</i>	<i>Completed</i>
Military	8
Army (8)	
Navy (0)	
Air Force (0)	
Federal	7
VA	
USPHS	
OFA	
Civilian	38
Interdepartmental	13
<hr/>	
Total	66

Other activities

The Historical Collections databases currently include 39,555 records representing almost 15,000 artifacts. Historical Collections is the first dataset to go ‘live’ on KE EMu and currently the only live dataset. JV Curley and AJ Hawk of the Historical Collection’s staff edited and standardized approximately 15,500 records in the new database during CY 2008. The goal of the database is to make the holdings of Historical Collections more widely available to the research community. G Feeney of the Historical Collection’s staff is actively processing the Charles Posner Collection, an international-scope collection of medical distinctive unit insignia. V Neaz of the Historical Collection’s staff generated approximately 5,000 images of historical and anatomical artifacts for eventual incorporation into the Ke Emu database.

Historical Collections collected numerous artifacts to document the history of military medicine. The most significant acquisition for the year was an almost complete set of medical instruments and devices, including a seven-foot square section of the concrete floor and the Emergency Department tent, documenting treatment at Trauma Bay II, Balad Theater Hospital in Iraq, where many of the most critically injured American service members were treated between 2004 and 2007. The floor serves as mute evidence to the heroic efforts made to save the lives of wounded service members and others that passed over it during the course of three years of the war in Iraq. This acquisition was facilitated by Offices of Congressman Steve King, Michael Burgess, John Carter and David Davis. A special mount was fabricated to simplify movement of Trauma Bay II. Artifacts from this acquisition can be seen in the exhibit “Trauma Bay II, Balad, Iraq.”

Other acquisitions documenting military medicine include sickbay bunks, an operating room table, a sterilizer and other medical devices from the sickbay of the USS Gage (APA-168), which was involved in the initial assault of the Okinawa invasion on 1 April 1945 during the Second World War. The museum acquired completely fitted out Special Medical Emergency Evacuation Device (SMEED) used by a USAF Critical Care Air Transport Team ICU-level physiological monitoring of patients being evacuated from Iraq and Afghanistan during the Global War on Terrorism. Another significant acquisition was a pair of “Mickey Mouse” boots worn by Sgt. Ed Burton, Weapons Co., 1/1 U.S. Marine Corps in Korea in 1953-1954. Mickey Mouse boots were insulated rubber boots that prevented soldiers and marines from getting frostbite during the Korean Conflict.

The Satava Collection initiative, a prospective collecting effort in honor of Richard Satava MD FACS, documents the influence of computerization in the practice of medicine. Dr. Satava agreed to support this collection initiative which will give the museum a unique opportunity to collect the technology causing a paradigm shift in the practice of medicine as it is occurring. Among the artifacts collected under this initiative include a prototype of a wireless, fully implantable sensor system capable of detecting pressure, temperature, blood oxygen tension, and heart pulse rate that actively and continuously records and transmits data in real time. Historical Collections also acquired PRIMETIME II and PRIMETIME III, field telemedicine devices developed and fielded by Medical Advanced Technology Management Office (MATMO) and Telemedicine & Advanced Technology Research Center (TATRC) during the 1990’s. These items were among the first systems to perform telemedicine across the globe allowing medical doctors in the Balkans region to consult with their counterparts in the United States.

The third collection effort is the Orthotic and Prosthetics initiative which seeks to document continuity and change in the field of orthotics and prosthetics. This initiative updates to the

twentieth and twenty-first centuries a substantial collection of artificial limbs dating from the early nineteenth century. Items collected through this initiative include a patellar-tendon-bearing (PTB) constructed for Thomas H. Porter, a bilateral amputee during the Korean conflict.

Other significant donations include a collection of artifacts from Dr. John King, professor emeritus of the veterinary school at Cornell University of record including instruments fabricated specifically for veterinary medicine as well as standard medical instruments adapted for veterinary use. Collection documents continued development and specialization of veterinary medicine in the twentieth century. Another acquisition was a doctor's black leather bag was used by Dr. Alexander N. Letko, a General Practitioner beginning his practice in the early post-World War Two era. This bag, which he stopped using a couple of years later when he decided to specialize in ophthalmology, still contains the instruments and medicines he used to make house calls in the early 1950's. A microscope belonging to Milton Helpern (of the New York Medical Examiner's Office) was donated to the collection by Dr. Stuart Nightingale, Dr. Helpern's stepson.

In October 2008, three biomedical engineering students studying dialysis design with Professor Paul Fagette and another professor of biomedical engineering from the Illinois Institute of Technology reversed engineered the Kolff Brigham artificial kidney which is displayed on the exhibit floor. With the assistance of AJ Hawk and JV Curley, the students took measurements and photographs of the device, in order to build a reproduction to be donated to the Kolff Artificial Organs Museum in Kampen, the Netherlands. This project will give the students insights on how previous engineers solved problems associated with renal dialysis.

JV Curley toured the humanitarian hospital ship US Comfort with members of the Joint Task Force from the Bethesda Naval Base.

AJ Hawk curated exhibits entitled "The William Holland Ophthalmology Collection" which opened with reception hosted by The Society of Military Ophthalmologists in August 2008, "Trauma Bay II, Balad, Iraq," which opened Veterans Day 2008 and "Facial Reconstruction" in Battlefield Surgery 101 on 2 December 2008. JV Curley prepared wax models and artifacts for various 'Disease of the Month' displays overseen by the Public Programs Division. AJ Hawk and JV Curley assisted with the "Resolved" Exhibit, participating in the planning group and selecting and preparing artifacts for the display. Staff assisted the Exhibits Department and Registrar in preparing collection material for use in a new exhibit at the Pentagon.

AJ Hawk and JV Curley gave 1-3 behind the scenes small group tours of Historical Collections each month with discussions and presentations tailored to the interest of participants.

Lectures and Presentations

October 21, 2008: AJ Hawk, Thank God for Jonathon Letterman, Grand Rounds, Department of Surgery, Walter Reed Army Medical Center.

April 30, 2008: AJ Hawk, Do our best for the wounded; The Medical Department of the National Liberation Front, Gary P. Wratten Surgical Symposium, Uniformed Services University of the Health Sciences.

AJ Hawk and JV Curley gave presentations to the museum's docent group on the Trauma Bay 2, Balad, Iraq exhibit and on medical technology to history of science and technology students from the University of Maryland, College Park.

JV Curley offered a special talk on the history of prosthetics in the Historical Collection to a group of physical and occupational therapists at Walter Reed Army Medical Center.

Conference Participation

29 January-1 February 2008: AJ Hawk, Medicine Meets Virtual Reality 16.

10-12 April 2008: AJ Hawk, JV Curley, American Association for the History of Medicine, Rochester, NY.

10 April 2008: AJ Hawk, JV Curley, Medical Museums Association Montreal, Canada,

10 APR 2008: AJ Hawk, JV Curley, Society for the History of Navy Medicine, Montreal, Canada.

Publications

Alan Hawk, "Foundations: Histology, circa 1885," *The Scientist*, 22:1 (January 2008): 80.

Two articles are in press.

Committee and Board Service

JV Curley began his term as alternate (for Dr. Adrienne Noe) on the AFIP Research Committee.

JV Curley was elected to a two year term as Vice President of the Medical Museum Association (MeMA) at their 2008 annual meeting.

OTIS HISTORICAL ARCHIVES

STAFF

Michael Rhode, Chief Archivist
Kathleen Stocker, Assistant Archivist
(D) Thomas Gaskins, Archives Technician
Donna Rose, IMC Supervisor Archivist
(D) Kirsten Strigel, IMC Contract Archivist
Amanda Montgomery, IMC Contract Archivist
LaFonda Burwell, IMC Contract Archives Technician
(A) Karen West, IMC Contract Archives Technician
(A) Anna Korosec, IMC Contract Archives Technician
(D) Shanika Queen, IMC Contract Archives Technician
(D) Natasha Lyles, IMC Contract Archives Technician
(A/D) Lauren Clark, student volunteer

January 2009 marks Rhode's twentieth year as the Museum's archivist. In that time the Archives has grown immensely and has been far better catalogued. A 1988 guide to archives listed it as having 200 linear feet of collections, but that number is in the thousands now. Users and researchers have increased tremendously as well, as have the ways the collection is used. In 1989, there was one computer, with one database of a few photographs on its 24-megabyte hard drive; in 2009, the Archives is approaching one terabyte of digitized information. Photographs are no longer sent to a photography department for reproduction with a lag of months, but are scanned and sent to the requestor almost immediately. However, some once-common media such as 3/4" videotape fill the Archives, but are now impossible for us to access. Technology has changed the way we do business and will continue to do so at an increasing pace, but we hope to continue adding to the collection and making the medical history of America available to our constituency.

Substantial requests for information were handled, frequently regarding sensitive topics. Of the requests that we tracked, we had at least 183 substantial reference requests this year, including 93 from people representing institutions and 9 countries outside the U.S. The museum's photography collections received notice from the fine arts world: the Smithsonian American Art Museum borrowed eight of William Bell's Civil War photographs of soldiers for an exhibit; the Metropolitan Museum of Art called for help in cataloguing their copies; and in January 2009 the Museum of Fine Arts, Houston, began reviewing photographs for a loan. The Vorwald Collection continues to be used for research for asbestosis lawsuits in spite of being open to the public for two decades. Interest in the 1918 influenza epidemic has not yet peaked, and many requests were received to use images from the Archives, all of which are viewable on the website to facilitate research. Rhode was interviewed by Bill Koslosky for "The National Museum of Health & Medicine: archival images on Flickr," was an invited participant for the "Archival Research" panel of the Graduate Student Symposium for historians of medicine at the National Library of Medicine, and spoke on "Genealogical Possibilities in the National Museum of Health and Medicine," for the National Capital Region of Association of Professional Genealogists at the National Archives. Rhode wrote "Book Review: Rehabilitating Bodies: Health, History and the American Civil War by Lisa A. Long," for the *Journal of Southern History*; "Foundations: E.R. Squibb, 1854," and "Foundations: Photomicroscopy, circa 1876," for *The Scientist*. He submitted a paper on the Medical and Surgical History of the War of the Rebellion for publication in the *Journal of the History of Medicine and Allied Sciences*, and is currently implementing reviewer comments on it. Rhode has had a paper on the Museum in World War I accepted for the American Association of the History of Medicine's annual meeting in April. Tours were given to National History Day students (June), the DC Public Health Department (June) and the Mid-Atlantic Regional Archives Conference, aka MARAC (November).

Stocker and Rhode have been assisting the Borden Institute with a photographic history of

WRAMC for the 2009 anniversary. In addition to providing scans of photographs of the base and personnel, they are also writing captions while contributing to the layout and editing of the publication. The book should appear in the spring, and features many photographs from the Archives.

The Medical Illustration Service Library, through the IMC scanning project, continues to be digitized. Rhode is the Task Order Manager for the MIS part of the project; he and the assistant archivists and technicians selected material for scanning, reviewed the material, and recommended accepting the work on behalf of the government. Stocker provides the quality control. The members of the IMC team are processing and cataloging the images prior to scanning so the records of the images are complete upon their return. 350,000 images were scanned last year, and cataloging and indexing are being finished. Collections scanned or added to the online system last year included the World War I-Reeve Collection, Surgical Photographs, the Museum's 19th century collections logbooks, captured Viet Cong medical journals, accession files for the Orthopathology collection, and HDAC's Carnegie collection records. AFIP's Veterinary Pathology Dept. 35mm teaching slide set was scanned, and added to the MIS Library as an electronic collection. 220,000 images are anticipated for this year including finishing 10,000 military medicine photographs newly added to the New Contributed Photographs collection and scanning the Museum's Accession Files as well as images of WRAMC from their DPW department and historical images from the Navy's Bureau of Medicine and Surgery. Stocker identified an additional 1300 images from the WWII-era MAMAS collection, then catalogued and sent them to IMC for scanning. All roughly 500,000 photographs are searchable on the AFIP's AWARS system to anyone who has registered to use the system.

Computerized cataloging on the collection level has continued in the shelf inventory. Cataloging of new material coming into the museum was done for the General Medical Products Information Collection, Medical Ephemera, New Contributed photographs, Audiovisual Collection, AFIP Historical Files, WRAMC Historical Collection and other artificial collections. Implementation of a comprehensive computer catalogue for the entire Museum continued with data from the archives being turned over to KE Software for conversion to their EMU database, although this project was slowed due to financial issues. Uploading of Archives data was finally resumed in the fall and has been tested three times. It is expected to be usable this spring. After all five collection divisions are included this spring, data from IMC's database will be imported in the summer and an extensive single database of the Museum's holdings should be available in the fall for widespread use.

New material acquired included a daguerreotype by William Bell depicting a man with drooping eyelid, ca. 1852, purchased through the generosity of Frederick Sharf; 5 Army School of Nursing yearbooks including Taps 1929, 1930, 1931 and The Annual 1926, 1927 from the US Army Medical Department Museum; a box of lantern slides and box of patient records associated with WWII service of neurologist Dr. Augustus McCravey; 11 boxes of research files from amputee service at Valley Forge General Hospital in Phoenixville, PA from the Vietnam War era; a framed Plexiglas print of synthetic estrogen molecule "Moxestrol" by Mara Haseltine; digital photographs from the book War Surgery in Afghanistan and Iraq from the Borden Institute; 6 linear feet of files related to AFIP radiologist Colonel William L. Thompson, circa 1907-1975 from the American College of Radiology; approximately 48 thousand 35-mm slides of gross veterinary pathology and 11 veterinary tools from Dr. John King; 1 linear foot of records of Dr. John (Henry) Budd of WWII service with 34th Evacuation Hospital, 4th Auxiliary Surgery Group on neurosurgery; items associated with the practice of Dr. Alexander N. Letko including one prescription pad for narcotics (1948) and a folder of papers and letters; dental lecture videotapes from the U.S. Army Dental & Trauma Research Detachment; one empty dressing packet for "Bontecou's Soldier's Packet for first Wound Dressing"; 21 books on medical photography authored by Dr. Stanley Burns from Dr. Burns; a copy of a dissertation on leprosy "Letters from Carville: Narrating the Unspoken Story of the Landry Family" (2007); and miscellaneous books.

The Archives has a significant presence on the Internet including the Guide to the Collections of the Museum on the museum website which remains the main way researchers begin to use the archives. Stocker has revamped the Guide for the first time since 1998 and has it almost ready to go on the web. Several finding aids were added to the website. Finding aids for the Townsend Collection of aviation pathology records, the Donald Collection of World War 2 hospital ship material, the NMHM Audiovisual Collection, and the General Medical Products Information Collection (GMPI) were loaded onto the Museum's website. Stocker has reformat-

ted, added material, and edited the Ball Collection of ophthalmologic materials, and it is almost ready to be added to the website. No more archival collections were listed in the Library of Congress' National Union Catalogue of Manuscript Collections (NUCMC); however, finding aids should still be sent to NUCMC in the future for the different audiences it reaches.

In fall 2006, archives staff began adding interesting photographs to Flickr's website. By late January 2008, approximately 400 photographs had gotten 48,000 views; in January 2009, 683 images had received 107,526 views, an increase of about 155%. This clearly demonstrates the appeal of the photographs held in the Archives; however, policy blocks access to Flickr so any additional photographs are added by individuals. The Archives also received an invitation to join the Flickr Commons, a site for displaying the public photo collections of cultural institutions, which would increase viewership into the millions, but this has been waiting Legal Counsel's review for several months. In the spring, Rhode began *A Repository for Bottled Monsters*, an unofficial blog for the museum, which has also attracted a worldwide audience.

Books and documents scanned by IMC were uploaded to the free Internet Archive, where they are available for downloading. Titles uploaded included *The Armed Forces Institute of Pathology - Its First Century 1862-1962* (1962); A History of the United States Army Medical Museum 1862 to 1917 compiled from the Official Records (1917) by Daniel S. Lamb; the *Medical and Surgical History of the War of the Rebellion* (six volumes, 1870-1888); the *Medical Department of the US Army in the World War* (15 volumes, 1923-1929); "The Annual" (Nursing Yearbook) from Walter Reed General Hospital in Washington, DC, and Letterman General Hospital in San Francisco, California (1921-1927); "Taps" Annual (Nursing Yearbook) from Walter Reed General Hospital (1929-1931); *An Illustrated Description of First-Class Achromatic Microscopes, Apparatus, Specimens, etc.*, Miller Brothers (1879); *A Catalogue of Surgeons' Instruments, Air and Water Beds, Pillows, and Cushions, Bandages, Trusses, Elastic Stockings, Inhalers, Galvanic Apparatus, and Other Appliances Used by the Medical Profession*, Maw and Sons (1866); A Medical Survey of the Bituminous-Coal Industry (1947); *The Kennedy Autopsy Report* by Pierre Finck of the AFIP; Cantor Lectures: The Microscope (1888) - lectures on the history of the microscope by British collector John Mayall, Jr. excerpted from the Journal of the Society of the Arts, 1885-1888; *Decorations and Medals of the United States of America* (1943), John Wyeth and Brother broadsheet; Frances Pleasants' photograph album from the Civil War; *When You Go Home - take this book with you* - a WWI pamphlet directed at US troops about the dangers of venereal disease; *Nouveau Appareils a L'usage des Medecins et des Chirugiens* - M.G. Trouvé Medical and surgical instruments from the M.G. Trouvé company, 1872, excerpted from *Les Mondes*, May 9 and 16, 1872; *Nouveau Appareils a L'usage des Medecins et des Chirugiens* - M.G. Trouvé Medical/surgical instruments from the M.G. Trouvé company, Paris, excerpted from *Les Mondes*, July 15, 1869; *Phase Contrast Equipment with the Heine Condenser* microscope instruction manual; *Instructor's Guide for Casualty Simulation Kit Device*, a handbook for casualty simulation in disasters; The Graf-Apsco Company, 1943 catalog: a catalog of microscopes, dissecting instruments, and related medical and laboratory equipment; The Graf-Apsco Company 1946 catalog: a catalog of microscopes, dissecting instruments, and related medical and laboratory equipment; Kolff-Brigham Artificial Kidney (ca. 1950s) manual; *Variable Axis Total Knee Surgical Techniques* (ca. 1977) advertising booklets; *Gillette Receipts* (187?): a handwritten "receipt" (recipe) book from the late 19th century, of mostly pharmaceutical remedies, including those for asthma, cough, gangrene, "the itch," cholera, and bilious colic, but also for lucifer matches and liquid blacking.

Rhode served on the AFIP's Institutional Review Board and HIPPA committees as well as Museum committees including the Admin group, the collections committee (as did Stocker), and the database committee (as did Stocker). Volunteering to do so, Stocker photographed parts of collections for use in the museum's newsletter, for exhibit production, and for uploading to the Internet Archive, and has photographed both in-progress and completed exhibits. Montgomery and Strigel worked on a brochure on the museum's photographs and IMC's role in scanning them, which is still in draft form.

Gaskins retired in September. He had been part of the Museum staff since 2004, but he was a mainstay of AFIP for years longer than that. He had been with the Institute for seventeen years, joining it from the Federal Records Center in Suitland. Gaskins singlehandedly ran the fifty-year old Medical Illustration Service Library of 3,000 boxes of hundreds of thousands of photographs. The library was the Department of Defense's official medical photograph repository from 1949 on into the 1990s and he inherited all of the responsibility for the Library as staff left and were not replaced. Gaskin's sense of duty and responsibility preserved the Library, through at least two moves, and in spite of disinterest or worse on the part of

some. Gaskins joined the Archives due to the Information Manufacturing Corporation scanning project. The initial plan was to do a low-resolution scan of the Library's photographs and then discard the originals. Fortunately we were able to modify that plan and add the collection to the Museum. Gaskins was an integral part of making possible hundreds of thousands of scans. His knowledge of the collection and willingness to share it has been the only thing that enabled us to make sense of the staggering amount of pictures. Without Tom, the project would not have gotten off the ground. He also worked in the Archives and scanned all of our Civil War photographs. Lauren Clark volunteered in the archives over the summer to see if she was interested in a museum career. She rehoused parts of the Vorwald Collection and added folder headings to the finding aid, as well doing cataloguing and filing trade literature in the GMPI Collection.

Research and historical material, mostly on military medicine, was provided to AFIP, especially the Public Affairs Office and the Departments of Dermatologic Pathology, Telemedicine, Radiologic Pathology, and Soft Tissue Pathology among others. External users included US Army Office of the Surgeon General; US Navy Bureau of Medicine and Surgery; OTSG's Borden Institute; Bay Pines Veterans Administration Healthcare System; Home Front Communications; Samuel Merritt College (California); Columbia University; US Patent and Trademark Office; The Scientist Magazine; TRICARE Management Activity; Fort Lee (Virginia); Kunhardt Productions; USUHS; AmbolAnthos Publishers (The Netherlands); Baker-Cederberg Museum and Archives (New York); Medical Museion, University of Copenhagen; George Washington University Law School; National Inventors Hall of Fame (Ohio); Command Surgeon, USSOCOM; NCI Communications; The Burns Archive; Canadian Broadcasting Corp.; Boston University; Wood Library-Museum of Anesthesiology (Illinois); Henry Holt Publishers; Actuality Productions, Inc.; Fuji Television Network, Inc. (Japan); Fairfax County Public Library; Taniwaki & Associates, Inc. (Washington, DC); Oxford Film & Television (England); National Museum of American History; US Army Historian's Office; Los Angeles Daily News; Historian's Office, Walter Reed Army Medical Center; The Many-Headed Monster, Live Art Development Agency (England); American Red Cross; National Library and Archives Canada; St Paul's Cemetery; Esras Managing; Steptoe and Johnson LLP (Washington, DC); Institute for the Study of Occupation and Health; National Geographic; ColourFIELD (Germany); Wisconsin Historical Society; Aslan Productions; Tucson Medical Center; NARA; Kingsmen Exhibits Pte Ltd (Singapore); North Carolina Museum of History; James F. Humphries & Assoc. (West Virginia); Rice University; National Building Museum; University of Michigan; Gettysburg National Military Park; Sovereign Pharmaceuticals; Communications Ministry of Agriculture and Forestry (New Zealand); Health Protection Agency, United Kingdom; Compass Point Books; Public Affairs and Content Development, Armed Services Blood Program; CBS Eye Too Productions / Discovery Channel; Mind & Media; Phoenix Controls (Massachusetts); Foundation El Portavoz (Costa Rica); Indiana University; Hiroshima Peace Institute (Japan); Victorian Society at Falls Church; AOTF American Occupational Therapy Foundation; Weider History Group, Inc.; Synvasive Technology, Inc.; Journal AnBlok (Hungary); International Group for Historic Aircraft Recovery (TIGHAR); Visual Eyes, Inc.; South Windsor Historical Society and Wood Memorial Library; PMA Sciences (Canada); Turn of the Century Electrotherapy Museum (Florida); St. John's Riverside Hospital, Cochran School of Nursing (New York); University of California – Irvine; Shawnee town, City of Shawnee, Kansas; University of Missouri – Columbia; Veterans Administration Medical Center (Wisconsin); Twofour Digital Ltd. (England); Design Minds, Inc; University of Alberta; University of Manchester; University of Toyama (Japan); Army Historical Foundation; Oxford University; NBM; AUDLM; and the University of Newcastle.

Public Affairs Reports:

Interview by Bill Koslosky for "The National Museum of Health & Medicine: archival images on Flickr," Lexicillin QD blog (January 26, 2008): http://billkoslosky.md.typepad.com/lexicillin_qd/2008/01/the-national-mu.html

Presentations:

1. Rhode M. "Genealogical Possibilities in the National Museum of Health and Medicine," National Capital Region of Association of Professional Genealogists, National Archives (January 19)
2. Rhode M. Invited participant for "Archival Research" panel of Graduate Student Symposium for historians of medicine, National Library of Medicine (May 2008).

Publications:

1. Rhode M. "Book Review: Rehabilitating Bodies: Health, History and the American Civil

- War. By Lisa A. Long," Journal of Southern History 74:1 (February 2008)
2. Rhode M. "Foundations: E.R. Squibb, 1854," The Scientist (February 2008)

HUMAN DEVELOPMENTAL ANATOMY CENTER

STAFF

Elizabeth C. Lockett, Collections Manager
Emily Wilson, Collections Technician

Imaging Technicians for Virtual Embryo Project:

Jill Elise VanMetter, Graduate Student, College of Chemical and Life Sciences, University of Maryland

Intern, Collections Management

Tara Valcemon, Washington Internship Program

IMPACT

To acquire, preserve, and encourage the use of major research collections for all qualified members of the research community. The collections are made available for research and for education by appointment and via Web site. Continued stimulation of new hypothesis-driven research is a top priority.

The Human Developmental Anatomy Center continues to be a partner in on-going collaborations with the National Heart Lung and Blood Institute. These collections represent an important resource for the AFIP and its slides and library are regularly used by AFIP staff.

EDUCATION

1. 3 High School interns (volunteer)
2. 1 AFIP Internship Program
3. 1 Undergraduate, Washington Internship Program

RESEARCH

Non-grant Research days supported: 19

Collaboration: 20 days

Grant supported days: 240

Data requests: 3

Film crews

Tours: 16

Talks: 4

Collaborators in research and education projects:

1. National Institutes of Health, Nuclear Magnetic Research Center, Bethesda, MD
2. National Institutes of Health, National Heart Lung and Blood Institute, Bethesda, MD
3. Louisiana State University, Health Sciences Center, New Orleans, LA
4. Meddium, Inc. and Zoom Intelligence, Inc. Silver Spring, MD

PROFESSIONAL ACTIVITIES

Official trips:

One.

Museum Programs

1. Brain Awareness Week
2. Talk on Medical & Scientific Illustration as career
3. Talk on modern medical imaging



AMERICAN REGISTRY OF PATHOLOGY



William A. Gardner Jr, MD
Executive Director
Date of Appointment — 1 August 2002

AMERICAN REGISTRY OF PATHOLOGY (ARP)

In 2008, the American Registry of Pathology supported 40 Pathology residents through the Donald West King One Month Fellowship program. These were in Pathology Sub-Specialties, e.g. GYN and Breast, Genitourinary, Soft Tissue, Hematopathology, Oral and Maxillofacial, Neuropathology, Gastrointestinal, Endocrine, Dermatopathology, Environmental and Infectious Disease, and Pulmonary Pathology.

Fellows' home institutions included Northwestern University, University of Iowa, Georgetown University, University of Alabama, Howard University, San Antonio Uniformed Services Health Education Consortium, Poznan University of Medical Sciences, Medical University of Bialystok, Uniformed Services University of the Health Sciences, University of Maryland, Texas A & M Health Science Center, Lackland Air Force Base, Baylor College of Dentistry, Baylor School of Medicine, University of Tennessee Medical Center, University of Nebraska Medical Center, Rhode Island Hospital Center, Great Poland Cancer Center, National Institutes of Health, and Tanta University in Egypt.

Through the AFIP, ARP provided about 300 employees to the Department of Defense (DoD). Approximately 150 employees staff the Armed Forces DNA Identification Laboratory (AFDIL) in Rockville, MD. In 2011, these functions will be relocated to Dover, DE in compliance with the BRAC (Base Realignment and Closure). We have initiated a program in support of this transition for AFDIL employees. ARP continues to provide administrative infrastructure in support of AFIP educational programs and its research grants and contracts.

ARP Press publication offices, located in Silver Spring, MD, produced very well-received Atlases of Pathology, which continue to be standard references worldwide. In 2008, ARP Press published Volume 8 in Series IV of the Atlas of Tumor Pathology (*Tumors of the Adrenal Gland and Extraadrenal Paraganglia*, by Ernest E. Lack, MD) and Volume 9 (*Tumors of the Salivary Glands*, by Gary L. Ellis, DDS and Paul L. Auclair, DMD, MS). In the Atlases of Non-Neoplastic Pathology, Volume 6 was published (*Non-Neoplastic Disorders of Bone Marrow*, by Kathryn Foucar, MD, David S. Viswanatha, MD and Carla S. Wilson, MD, PhD). 500 copies of each Atlas were provided gratis to the Armed Forces Institute of Pathology (AFIP) for distribution to Military Pathologists worldwide.

The current officers of the ARP Board of Directors are Ronald A. DeLellis, MD (Chair), Fred Gorstein, MD (Past Chair), A. Julian Garvin, MD (Vice-Chair), Ralph Eagle, Jr., MD (Secretary/Treasurer), and William A. Gardner, MD (Executive Director).

2008 CUMULATIVE PUBLICATIONS LIST

2008 CUMULATIVE PUBLICATIONS LIST

Discounting duplicate listings for multiple authors, and using publications reported in departmental annual reports, in 2008 the medical and scientific staff of the AFIP published 175 articles in professional journals and 95 abstracts. They contributed 22 chapters to published books, and were authors or editors of 4 published books. Fifteen miscellaneous publications included chapters in various course syllabuses, newsletter issues, Web publications or epub, and books and fascicles digitized for online publication. Details of these publications appear below. Authors are listed alphabetically within departments, divisions, offices, etc, which are also listed alphabetically.

AIDS, DIVISION OF ENVIRONMENTAL & INFECTIOUS DISEASE PATHOLOGY

Publications:

Hiatt KM, Nelson AM, Lichy JH, Fanberg-Smith JC. Classic Kaposi sarcoma in the United States over the last two decades: a clinicopathologic and molecular study of 438 non-HIV-related Kaposi sarcoma patients with comparison to HIV-related Kaposi sarcoma. *Mod Pathol*. 2008; 21:572-82.

ARMED FORCES MEDICAL EXAMINER, OFFICE OF

Publications OAFME:

1. CT Mallak. Journal of Trauma-Injury Infection and Critical Care. Advances in Combat Casualty Care: Clinical Outcomes of War. 64(2) Supplements: S21-S27, February 2008.
2. CT Mallak. Quantitative Analysis of the Aminosteroidal Non-Depolarizing Neuromuscular Blocking Agent Vecuronium by LCESI-MS: A Postmortem Investigation. Journal of Analytical Toxicology, ISSN 0146-4760, Volume 32, Number 6, July/August 2008, pp. 422-427

Publications Mortality Surveillance:

1. Alitzer L. "All-Terrain Vehicle Safety," *Orthopedic Nursing Journal*. 2008;27(4).
2. Alitzer L. "Colles' Fracture," *Orthopedic Nursing Journal*. 2008;27(2).
3. Alitzer L. "Musculoskeletal System," Chapter 11. In: Hurst Reviews: Pathophysiology Review, McGraw Hill Publishers, 2008
4. Harcke HT, Levy AD, Getz JM, Robinson SR. MDCT analysis of projectile injury in forensic investigation. *AJR Am J Roentgenol*. 2008; 190(2):W106-11. Review.
5. Kelly JF, Ritenour AE, et al. Injury severity and causes of death from Operation Iraqi Freedom and Operation Enduring Freedom: 2003-2004 versus 2006. *J Trauma*. 2008; 64(2 Suppl): S21-6; discussion S26-7.
6. Lapa JA, Sincock S, Ananthakrishnan M, et al., Randomized clinical trial assessing the safety and immunogenicity of oral microencapsulated enterotoxaemia Escherichia coli surface antigen 6 with or without heat-labile enterotoxin with mutation R192G. *Clinical and Vaccine Immunology*. 2008(15); 1222-1228.

BIOPHYSICAL TOXICOLOGY, DIVISION OF ENVIRONMENTAL & INFECTIOUS DISEASE PATHOLOGY

Journal Articles:

1. Centeno JA. Editorial – Introducing a special theme issue on medical geology. *J Environ Monit*. 2008; 10(12): 1391-1393. Epub 2008 Nov 5.
2. Centeno JA. Foreword: 10th anniversary review: natural disasters and their long-term impacts on the health of communities. *J Environ Monit*. 2008; 10(2); discussion 167-175. Epub 2008 Jan 21.
3. Centeno, JA. Medical geology, impacts of the natural environment on human health. *Intercentia*. 2008; 33(3):170
4. Finkelman RB, Centeno JA, Selinus O. Medical Geology – Threat or Opportunity. AIPG

2008:46-49.

5. Gibb HJ, Kozlov K, Centeno JA, Poulin J, Jurgenson V, Kolker A, Conko KM, Landa ER, Panov BS, Xu H. Occupational Mercury Exposure at a Mercury Recycling Facility in Ukraine. *J Occup Environ Hygiene*. 2008; 5(8): 483-489.
6. Sarafanov AG, Todorov TI, Kajdacsy-Balla A, Gray MA, Macias V, Centeno JA. Analysis of iron, zinc, selenium and cadmium in paraffin-embedded prostate tissue specimens using inductively coupled plasma mass-spectrometry. *J Trace Elements in Medicine and Biology*. 2008; 22(4): 305-314. Epub 2008 Jul 16.
7. Todorov TI, Xu H, Ejnik JW, Mullick FG, Squibb K, McDiarmid MA, Centeno JA. Depleted uranium analysis in blood by inductively coupled plasma mass spectrometry. *J Anal At Spectrom*, Epub Dec 5.
8. Van der Voet GB, Sarafanov A, Todorov TI, Centeno JA, Jonas WB, Ives JA, Mullick FG. Clinical and analytical toxicology of dietary supplements: a case study and a review of the literature. *Biological Trace Element Research*. 2008;125(1):1-12. Epub 2008 Aug 16.

Book Chapters and Special Reports:

1. Selinus O, Finkelman R, Centeno JA, Cave M. Medical Geology – the European Perspective. Central European Geology (*Acta Geologica Hungarica*) 2008; 51(2): 1-19
2. Tchounwou PB, Centeno JA. Toxicologic Pathology. In: *Handbook of Preclinical Development – Toxicology* (Cox Gad S, editor) John Wiley & Sons Inc (2008), pp551-580 (Chapter 16th) (ISBN 978-0-470-24846-1)
3. Van der Voet GB, Centeno JA. Metals. In: *Side Effects of Drugs*, Annual 30 (Aronson JK, editor), Elsevier Science BV, Amsterdam (2008), pp262-272 (Chapter 22)(ISBN 0-444-52767-2)(invitation)

Research Abstracts Published in Books of Abstracts and/or Conference Proceedings:

1. Centeno JA. Respiratory Toxicology: Health Effects of Bioactive Metals in Natural Dusts. 1st Latin American Forum on Health Disparities in Latino Communities – Obesity, Asthma, and Sexually Transmitted Infections. San Juan, Puerto Rico, February 28-29, 2008.
2. Centeno JA. Metals, Metalloids and Health. 7th Annual Symposium on the Environment and Hormones – Environmental Signaling in Urban Ecosystems. Center for Environmental Research, Tulane/Xavier, April 13-16, 2008.
3. Centeno JA. The Emerging Field of Medical Geology and the Role of Trace Element Speciation in Human Health. 4th International Symposium on Trace Element Speciation in Biomedical, Nutritional and Environmental Sciences, May 25-29, 2008, Munich, Germany.
4. Centeno JA. Arsenic and Medical Geology – The Role of the Earth Scientist in the Assessment and Prevention of Health Risk. 33rd International Geological Congress, Theme of the Day – Water and Health. Oslo, Norway, August 10-14, 2008.
5. Centeno JA. Health Effects from Geogenic (Natural) Dust. 5th International Symposium on Recent Advances in Environmental Health Research. Jackson State University, Jackson, Mississippi, September 15-17, 2008.
6. Centeno JA. Dust and Human Health – Environmental Toxicology Aspects from Exposure to Nanoparticles. XXV11 International Congress of the International Academy of Pathology, Athens, Greece, October 12-17, 2008.
7. Centeno JA, Squibb K, Todorov TI. Blood uranium isotopic analysis as a measure of depleted uranium exposure in U.S. Soldiers. 11th Annual Conference – Force Health Protection, Albuquerque, New Mexico, April 9-15, 2008.
8. Chesnick IE, Centeno JA, Todorov TI, Koenig AE, Potter K. Manganese-Enhanced Magnetic Resonance Microscopy of Mineralization Rates. 16th Scientific Meeting of the International Society for Magnetic Resonance in Medicine, Toronto, Canada, 3-9 May 2008.
9. Fornero E, Gunasekar P, Centeno JA, Chapman G, Van der Voet GB, Wagner D. Raman microspectroscopy characterization: The role of metal binding speciation. Abstracts 11th Annual Force Health Protection Conference, Albuquerque, New Mexico, USA, 9-15 August 2008 (track Science and Technology).
10. Ives JA, Centeno JA, Jonas WB, Van der Voet GB, Todorov TI. Clinical and analytical toxicology of dietary supplements: A case study. Abstracts 11th Annual Force Health Protection Conference, Albuquerque, New Mexico, USA, 9-15 August 2008 (track Occupational and Preventive Medicine Physicians).
11. Todorov T, Centeno JA, Koenig A, Sarafanov A. Distribution of Cd, Zn, Se, and Fe in Prostate Tissues. 11th Annual Conference – Force Health Protection, Albuquerque, New Mexico, April 9-15, 2008

12. Van der Voet GB, Olabisi AO, Wagner DJ, Chapman GD, Mullick FG, Centeno JA. Raman Microspectroscopy characterization of tungsten-based alloys: the role of metal-binding speciation. Abstracts 4th International Conference on Trace Element Speciation in Biomedical, Nutritional and Environmental Sciences, Munich-Neuherberg, Germany, May 25-29, 2008, poster no P15
13. Van der Voet GB, Sarafanov A, Todorov TI, Centeno JA, Jonas WB, Ives JA, Mullick FG. Toxicology of dietary supplements: a case study. Abstracts 5th International Symposium on Recent Advances in Environmental Health Research, Jackson, MS, September 14-17, 2008.
14. Zhang L, Xu H, Todorov TI, Centeno JA. Development of a robust method for the determination of uranium and detection of uranium isotopic ratios in human samples. 4th International Symposium on Trace Element Speciation in Biomedical, Nutritional and Environmental Sciences, May 25-29, 2008, Munich, Germany.

BIOPHYSICS, DIVISION OF SCIENTIFIC LABORATORIES

Journal Articles :

1. Badve S, Barone C, Bouzyk M, Long S, Mason JT. "DNA extraction and FFPE tissues," *Genome Technol Methods*. 2:7-14;2008.
2. Chesnick IE, Mason JT, Giuseppetti AA, Eidelman N, Potter K. "Magnetic resonance microscopy of collagen mineralization," *Biophysical Journal*. 95:2017-2026;2008.
3. Fowler CB, Cunningham RE, Waybright TJ, Blonder J, Veenstra TD, O'Leary TJ, Mason JT. "Elevated hydrostatic pressure promotes protein recovery from formalin-fixed, paraffin-embedded tissue surrogates," *Laboratory Investigation*. 88:185-195;2008.
4. Fowler CB, O'Leary TJ, Mason JT. "Modeling formalin fixation and histological processing with ribonuclease A: Effects of ethanol dehydration on reversal of formaldehyde cross-links," *Laboratory Investigation*. 88:785-791;2008.
5. Zhang X, Hashemi SS, Yousefi M, Ni J, Wang Q, Gao L, Gong P, Gao C, Sheng J, Mason JT, Man YG. "Aberrant c-erbB2 expression in cell clusters overlying focally disrupted breast myoepithelial cell layers: a trigger or sign for emergence of more aggressive cell clones?" *Int J Biol Sci*. 16:259-269;2008.

Book Chapter:

K Potter, WJ Landis. "Image-based, non-invasive monitoring of engineered tissues." In: *Translational Approaches in Tissue Engineering and Regenerative Medicine*. Jeremy Mao, Gordana Vunjak-Novakovic, Antonios Mikos, Anthony Atala, eds. Artech House, Inc; Norwood, MA: 2008.

Abstracts:

1. Chesnick IE, Centeno JA, Todorov TI, Koenig AE, Potter K. "Magnetic resonance microscopy of mineralization rates." *Magnetic Resonance in Medicine*. 16:539;2008.
2. Chesnick, IE, Avallone, FA, Potter, K. "Magnetic resonance microscopy of a novel mineralizing system." *Magnetic Resonance in Medicine*. 16:2533;2008.
3. Chesnick, IE, Mason, JT, Eidelman, N, Potter, K. "Magnetic resonance microscopy of collagen mineralization." *Magnetic Resonance in Medicine*. 16: 2532;2008.
4. Fowler CB, Mason JT, O'Leary TJ. "High hydrostatic recovery of proteins from formalin-fixed, paraffin-embedded archival tissue for proteomic studies." *Biophysical Journal*. 94:2827a;2008.
5. Fowler CB, O'Leary TJ, Mason JT. "Effects of dehydration in ethanol on the structure of formalin-fixed proteins." *Biophysical Journal*. 94:2831a;2008.

CARDIOVASCULAR PATHOLOGY, DEPARTMENT OF

Journal Articles:

1. Burke A. Primary malignant cardiac tumors. *Semin Diagn Pathol*. 2008;25:39-46.
2. Burke A, Jeudy J, Jr., Virmani R. Cardiac tumours: an update: Cardiac tumours. *Heart*. 2008;94:117-23.
3. Burke A, Virmani R. Pediatric heart tumors. *Cardiovasc Pathol*. 2008;17:193-8.
4. Burke AP, Tavora F, Narula N, Tomaszewski JE, Virmani R. Aortitis and ascending aortic aneurysm: description of 52 cases and proposal of a histologic classification. *Hum Pathol*. 2008;39:514-26.
5. Gonzalez-Cuyar LF, Cresswell NB, Burke AP. Sodium polystyrene sulfonate (Kayexalate) aspiration. *Diagn Pathol*. 2008;3:27.

6. Gonzalez-Cuyar LF, Lam-Himlin D, Tavora F, Burke A, Castellani RJ. Bilateral internal carotid absence: a case report of a rare congenital anomaly. *Cardiovasc Pathol.* 2008;17:113-6.
7. Gonzalez-Cuyar LF, Tavora F, Zhao XF, et al. Angiolymphoid hyperplasia with eosinophilia developing in a patient with history of peripheral T-cell lymphoma: evidence for multicentric T-cell lymphoproliferative process. *Diagn Pathol.* 2008;3:22.
8. Tavora F, Burke A, Kutys R, Li L, Virmani R. Total anomalous origin of the coronary circulation from the right pulmonary artery. *Cardiovasc Pathol.* 2008;17:246-9.
9. Tavora F, Burke A, Li L, Franks TJ, Virmani R. Postmortem confirmation of Lyme carditis with polymerase chain reaction. *Cardiovasc Pathol.* 2008;17:103-7.
10. Tavora F, Crowder C, Kutys R, Burke A. Discrepancies in initial death certificate diagnoses in sudden unexpected out-of-hospital deaths: the role of cardiovascular autopsy. *Cardiovasc Pathol.* 2008;17:178-82.
11. Tavora F, Crowder CD, Sun CC, Burke AP. Discrepancies between clinical and autopsy diagnoses: a comparison of university, community, and private autopsy practices. *Am J Surg Pathol* 2008;129:102-9.
12. Tavora F, Gonzalez-Cuyar LF, Dalal JS, et al. Fatal parvoviral myocarditis: a case report and review of literature. *Diagn Pathol.* 2008;3:21.
13. Tavora F, Miettinen M, Fanburg-Smith J, Franks TJ, Burke A. Pulmonary artery sarcoma: a histologic and follow-up study with emphasis on a subset of low-grade myofibroblastic sarcomas with a good long-term follow-up. *Am J Surg Pathol.* 2008;32:1751-61.

Abstracts:

1. Burke A, Cresswell N, Kutys R, Li L, Virmani R. Pathologic features of hypertrophic cardiomyopathy in exertional and non-exertional sudden deaths. *Mod Pathol.* 21:62A, 2008.
2. Burke AP, Kutys R, Ladich E, Virmani R. Distal coronary artery disease has less calcification, macrophage infiltrates and necrotic cores, and fewer thin cap fibroatheromas independent of percent stenosis. *Circulation.* 118:1050A, 2008
3. Burke AP, Ladich E, Kutys R, Kolodgie F, Virmani R. Immunolocalization of fibrin in early and late atherosclerotic plaques: Implications for its role in coronary plaque progression. *Circulation.* 118:478A, 2008
4. Cresswell N, Kutys R, Virmani R, Burke A. Morphologic findings of coronary culprit lesions in premature familial sudden coronary death. *Mod Pathol.* 21:62A, 2008.
5. Cresswell N, Kutys R, Li L, Franks T, Virmani R, Burke A. Cardiac sarcoidosis and sudden death. *Mod Pathol.* 21:63A, 2008
6. Ladich E, Nakazawa G, Cook S, Windecker S, Burke A, Kolodgie F, Virmani R. Pathology of hypersensitivity in late DES thrombosis. *Circulation.* 118:1047A, 2008
7. Lam-Himlin D, Tavora F, Drachenberg C, Burke A. Significance of B-cells in heart biopsies for allograft rejection, and incidence of non-endocardial "Quilty-like" lesions. *Mod Pathol.* 21:64A, 2008.
8. Maxfield K, Burke AP, Pacheco E, Virmani R. Distal coronary disease has less calcification, macrophage infiltration and necrotic core than proximal coronary artery disease, independent of percent stenosis. *Mod Pathol.* 21:65A, 2008
9. Schwartz RS, Burke AP, Farb A, Kaye D, Lesser JR, Virmani R. Myocardial Microvascular Obstruction in Sudden Death from Acute Myocardial Infarction Occurs more often in Coronary Plaque Erosion than in Plaque Rupture. *Circulation.* 118:1046A, 2008

Book Chapters:

1. Burke A, Ladich E, Kutys R, Maxfield K, Kolodgie FD, Virmani R. The Thrombotic AMI Lesion: Lessons from Pathology. In: *Textbook of STEMI Interventions*, Ed. Mehta S, 2008 Malvern PA, pp 3-12.
2. Burke A, Ladich E, Virmani R. Pathology of angioplasty and stenting. In: *Atlas of Cardiovascular Pathology for the Clinician*, Second Edition. McManus B, Ed. Current Medicine, Philadelphia, 2008, pp 93-100.
3. Burke A, Jeudy J, Lee, C-H, McManus B, Virmani R. Primary and Secondary Tumors of the Cardiovascular System. *Atlas of Cardiovascular Pathology for the Clinician*, Second Edition. McManus B, Ed. Current Medicine, Philadelphia, 2008, pp 275-284.
4. Burke A, Jeudy J, Virmani R. Cardiac tumours: an update. *Heart.* 2008; 94(1):117-23.

CLINICAL LABORATORY MANAGEMENT, CENTER FOR

Publications:

1. Ciorlito LR. Consultant's Corner, Society Scope. Society of Armed Forces Medical Laboratory Scientists Newsletter. Winter 2008; Vol. 11, No. 1.
2. Wilson SA. Consultant's Corner, Society Scope. Society of Armed Forces Medical Laboratory Scientists Newsletter. Winter 2008; Vol. 11, No. 3.

DERMATOPATHOLOGY, DEPARTMENT OF

Journal Article:

Royer MC, Rush WL, Lupton GP: Hepatocellular carcinoma presenting as a precocious cutaneous metastasis. *Am J Dermatopathology*. 2008; 30(1):77-80.

DOD DNA REGISTRY, DIVISION OF OAFME

Journal Articles:

1. Achilli A, Perego UA, Bravi CM, Coble MD, Kong QP, Woodward SR, Salas A, Torroni A, Bandelt HJ. The phylogeny of the four pan-American MtDNA haplogroups: implications for evolutionary and disease studies. *PLoS ONE*. 2008; 3(3): e1764.
2. Hill CR, Kline MC, Coble MD, Butler JM. Characterization of 26 miniSTR loci for improved analysis of degraded DNA samples. *J Forensic Sci*. 2008; 53(1): 73-80.
3. Irwin JA, Saunier JL, Strouss KM, Diegoli TM, Sturk KA, O'Callaghan JE, Paintner CD, Williams H, Watson K, Just R, Kovatsi W, Parsons TJ. Mitochondrial Control Region Sequences for Northern Greeks and Greek Cypriots. *International Journal of Legal Medicine*. 2008; 122(1): 87-89.
4. Irwin JA, Saunier JL, Strouss KM, Diegoli TM, Sturk KA, O'Callaghan JE, Paintner CD, Hohoff C, Brinkmann B, Parsons TJ. Mitochondrial Control Region Sequences for Vietnam. *International Journal of Legal Medicine*. 2008; 122(3): 257-259.
5. Just RS, Diegoli TM, Saunier JL, Irwin JA, Parsons TJ. Complete mitochondrial genome sequences for 265 African American and U.S. Hispanic individuals. *Forensic Science International: Genetics*. 2008; 2(3):e45-48.
6. Koon H.E.C, Loreille O.M, Covington A.D, Christensen A.F, Parsons T.J and Collins M.J. Diagnosing post-mortem treatments which inhibit DNA amplification from US MIAs buried at the Punchbowl. *Forensic Sci Int*. 2008; 178(2-3): 171-177.
7. Parson W, Fendt L, Ballard D, Børsting C, Brinkmann B, Carracedo A, Carvalho M, Coble MD, Real FC, Desmyter S, Dupuy BM, Harrison C, Hohoff C, Just R, Krämer T, Morling N, Salas A, Schmitter H, Schneider PM, Sonntag ML, Vallone PM, Brandstätter A. Identification of West Eurasian mitochondrial haplogroups by mtDNA SNP screening: results of the 2006-2007 EDNAP collaborative exercise. *Forensic Science International: Genetics*. 2008; 2(1): 61-68.
8. Saunier JL, Irwin JA, Just RS, O' Callaghan JE, Parsons TJ. Mitochondrial control region sequences from a U.S. "Hispanic" population sample. *Forensic Science International: Genetics*. 2008; 2(2): e19-23.
10. Sturk KA, Coble MD, Barritt SM, Parsons TJ, Just RS. The application of mtDNA SNPs to a forensic case. *Forensic Sci. Int.: Genet. Supplement Series 1* 2008; 295-297.

Book Chapter:

Damann F, Edson S. Sorting and identifying commingled remains of US war dead: The collaborative roles of JPAC and AFDIL. Chapter 16. In: Adams BJ and Byrd JE (eds). *Recovery, analysis, and identification of commingled human remains*. 2008; Humana Press, Totowa, NJ.

ENDOCRINE AND OTORHINOLARYNGIC/HEAD-NECK PATHOLOGY, DEPARTMENT OF

Journal Articles:

1. Elsheik TM, et al. (incl. Heffess CS). Interobserver and intraobserver variation among experts in the diagnosis of thyroid follicular lesion with borderline features of papillary carcinoma. *Am J Clin Pathol*. 2008;130:736-744.
2. Gupta R, et al. (incl. Heffess CS). Pancreatic intraductal papillary mucinous neoplasms: Role of CT in predicting pathologic subtypes. *AJR*. 2008:191.
3. Heffner DK. Pathologists are from Mercury, clinicians are from Uranus: the perverted prospects of perceptual pathology. *Ann Diagn Pathol*. 2008;12:304-309.

4. Heffner DK. Treatments for pulmonary sarcoidosis (letter-to-the-editor). *Respiratory Medicine*. 2008;102:1674.
5. Wieneke JA, Smith A. Sine qua non radiology-pathology (Head Neck Pathology Radiology Classics): Parathyroid adenoma. *Head Neck Pathol*. 2008;2:305-308.

Book Chapters:

Wieneke JA, Lack EE. The adrenal glands. In: Bostwick DG, Eble JN, eds, *Urologic Surgical Pathology*, 2nd edition. St. Louis, Mo. Mosby; 2008.

ENVIRONMENTAL PATHOLOGY, DIVISION OF ENVIRONMENTAL & INFECTIOUS DISEASE PATHOLOGY

Journal Articles:

1. Maggio KL, Kalasinsky VF, Lewin-Smith MR, Mullick FG. Wound fragments from cutaneous sites of U.S. military personnel deployed in Operation Iraqi Freedom: clinical aspects and pathologic characterizations. *Dermatol Surg*. 2008;34:475-482.
2. Simonyan K, Tovar-Moll F, Ostuni J, Hallett M, Kalasinsky VF, Lewin-Smith MR, Rushing EJ, Vortmeyer AO, Ludlow CL. Focal white matter changes in spasmodic dysphonia. *Brain*. 2008;131(2):447-459. (Brain Advance Access originally published online on December 14, 2007).
3. Thompson ME, Lewin-Smith MR, Kalasinsky VF, Pizzolato KM, Fleetwood ML, McElhaney MR, Johnson T. Characterization of melamine-containing and calcium oxalate crystals in three dogs with suspected pet food-induced nephrotoxicosis. *Vet Pathol*. 2008;45:417-426.

Abstracts:

1. Lewin-Smith MR, Carroll EE, Kalasinsky VF, Johnson TO, Mullick FG. Characterization of melamine-containing crystals and calcium oxalate crystals in the kidneys of two domestic cats by histopathology, infrared spectroscopy and scanning electron microscopy with energy dispersive X-ray analysis. *Modern Pathology*. 2008; 21 (Supplement 1): 7A, (15).
2. Lewin-Smith MR, Kalasinsky VF, Moezzi J, Mullick FG. Retained copper wound fragment presenting as a soft tissue mass 38 years after injury: histopathological and chemical analytical characteristics. *Histopathology*. 2008; 53 (Suppl. 1): 116, (262).
3. Rassaei N, Shilo K, Lewin-Smith MR, Kalasinsky VF, Klassen-Fischer MK, Franks TJ. A case of pulmonary zygomycosis associated with calcium oxalate deposition within bronchial cartilage. *Modern Pathology*. 2008; 21 (Supplement 1): 9A, (24).

ENVIRONMENTAL TOXICOLOGY, DIVISION OF ENVIRONMENTAL & INFECTIOUS DISEASE PATHOLOGY

Journal Articles:

1. Chirly O, Fishbein WN, Merezhinskaya N, Clarke S, Galuske R, Magistretti PJ, Pellerin L. Distribution of the monocarboxylate transporter MCT2 in human cerebral cortex: an immunohistochemical study. *Brain Res*. 2008;1226:61-69. (Epub 2008 Jun18)
2. Maggio KL, Kalasinsky VF, Lewin-Smith MR, Mullick FG. Wound fragments from cutaneous sites of U.S. military personnel deployed in Operation Iraqi Freedom: Clinical aspects and pathologic characterizations. *Dermatol Surg*. 2008;34(4):475-482. (Epub 2008 Jan 31.)
3. Simonyan K, Tovar-Moll F, Ostuni J, Hallett M, Kalasinsky VF, Lewin-Smith MR, Rushing EJ, Vortmeyer AO, Ludlow CL. Focal white matter changes in spasmodic dysphonia. *Brain*. 2008;131(2):447-459. Brain Advance Access originally published on-line on December 14, 2007.
4. Stacy BA, Santoro M, Morales JA, Huzella LM, Kalasinsky VF, Foley A, Mettee N, Jacobson ER. Renal oxalosis in free-ranging green turtles *Chelonia mydas*. *Dis Aquat Organ*. 2008;80(1):45-49.
5. Thompson ME, Lewin-Smith MR, Kalasinsky VF, Pizzolato KM, Fleetwood ML, McElhaney MR, Johnson TO. Characterization of melamine-containing and calcium oxalate crystals in three dogs with suspected pet food-induced nephrotoxicosis. *Vet Pathol*. 2008;45(3):417-426.

Abstracts:

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Kyorin University, Tokyo, Japan

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